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EARLY SETTLEMENT IN NORTHERN AUSTRALIA.

By A. M. MCINTOSH,
Sydney.

PART I: TRADE IN THE EAST.

WHEN Buonaparte conquered Holland, the vast insular possessions of the Dutch came under his control. If he were firmly established in Java he would have had a vantage point to assail both Britain's political ascendancy in the East and her commercial interests at home and abroad. For this reason a successful campaign was authorized in 1811 to gain control of Java for Britain, and Stamford Raffles was appointed Lieutenant-Governor. This gave a great impetus to British trade in the East, and to further the interests of merchants concerned the East India Trade Committee was formed.

The restoration of these Dutch settlements by the Treaty of Vienna in 1816 dealt a very serious blow to this trade, but British interests were maintained by the acquisition of the island of Singapore in 1819 and by the recognition in 1824 of the Malay Peninsula as being within the British sphere of influence. Raffles, however, still urged the importance of a settlement in the north of Australia. The Dutch did their utmost to retain the trade of their possessions within their own hands, and they took forcible steps to prevent English trade, not only with their own islands and the Moluccas, but also with other islands where no

Dutch were established. Preliminary surveys of the coast of north-west Australia had been carried out in 1818 by Captain Philip Parker King, R.N., who was born in 1791 at Norfolk Island, where his father (later the third Governor of New South Wales) was Lieutenant-Governor. King discovered many beautiful harbours and fertile land with abundant wood and water. He suggested a new settlement, and stressed the necessity for forestalling other nations. King particularly recommended Port Essington, which he had discovered and named after Vice-Admiral Sir William Essington. Because of the number of vessels for which it could provide anchorage, its commanding situation in Torres Strait, and the fact that it was in the line of communication between Port Jackson and India, it must, he considered, become a place of great trade and of very considerable importance generally. From Port Essington, King sailed to examine Melville Island and proved that a strait, which he called Apsley Strait, separated it from Bathurst Island, which he also named (Figure 1).

There were numerous adventurous spirits who were prepared to engage in trade in defiance of the Dutch embargo, and to take also the risk of capture by pirates. The decision to attempt to found a settlement in northern Australia was due largely to the persistent advocacy of one of these—William Barns—although the ground had been prepared by both Stamford Raffles and Philip King. Barns had been in the East India Company's naval service. He had cruised extensively in the East India Archipelago for twenty years and knew how great a profit the Dutch derived from this area. In September, 1823, he addressed

a memo to the Secretary for the Colonies, urging that a new settlement be established in the Gulf of Carpentaria. Here, he said, there was, in abundance, *bêche-de-mer* (trepang), which yielded the Dutch, when sold in China, £180,000 *per annum*. There were also tortoise shell and pearl shell, and from a headquarters in this area profitable operations throughout the adjacent islands could be readily carried out. He endeavoured to interest the East India Trading Committee, who added their persuasions to his. They pointed out that a station suitably established would be visited by Malay proas and become a thriving commercial centre.

This was particularly important because the prosperity, and even the retention, of Singapore was at this juncture in some doubt. The committee sent to the Colonial Office a strong recommendation that the settlement proposed should be established for two reasons: first, "as regards the commerce of the United Kingdom and its Indian dependencies"; second, "as a military station involving the security of our important possessions and valuable trade in that part of the world". They pointed out that an excellent trade in British goods, particularly cotton fabrics, which had been developed after the occupation of Java, had been almost entirely destroyed by restrictions imposed by the Dutch on foreign trade. As a site for a base for trading operations they recommended Port Essington. These arguments convinced Earl Bathurst, and on February 17, 1824, he directed Sir Thomas Brisbane to send a warship without delay to take formal possession of Bathurst and Melville Islands and the Coburg Peninsula. The first settlement was to be established in Apsley Strait if the land proved suitable as to soil, availability of water, etc. Afterwards the officer appointed was to examine Port Essington with a view to establishing a second settlement there; if he had sufficient personnel he was to detach some at Port Essington in passing, to examine it and to make a settlement there forthwith if conditions were favourable. If neither site was suitable the exact location was to be left to his discretion to settle at the nearest convenient site.

The Settlement on Melville Island.

H.M.S. *Tamar* (Captain Bremer) arrived in Sydney Cove in August, 1824, and left towards the end of that month to establish the settlement; included in the convoy were the *Countess of Harcourt*, a convict transport, and the schooner *Lady Nelson* of 60 tons. There were some 50 convicts, a few free men, 27 marines, and 25 men of the Third Regiment with a few commissariat officials; the maximum population of the settlement was 136. Bremer arrived at Port Essington on September 20, 1824; he thought it a most beautiful piece of water suitable for a large navy, but he could not find any fresh water, although there were indications of the presence of both Malays and natives. Possibly he did not persevere unduly in his search, as he had already decided that he had insufficient personnel to make two detachments. Six days later he arrived at the northern end of Apsley Strait. Here he found what he considered a suitable site with fresh water readily available at Port Cockburn, and started the construction of Fort Dundas. Bremer did not remain long at the settlement, but proceeded on his way to India on November 13, 1824, fully convinced of the future success of the undertaking. He left in command Captain Barlow of the Third Regiment, and as medical officer Charles Turner, M.D., assistant surgeon detached from the Royal Artillery. For a time at least they shared Bremer's optimism, for under the date April 28, 1825, Turner wrote:

We have established ourselves in this part of the world and the Island appears to afford the advantages that have induced the Government to send the Expedition. The Latitude is 11° 23' South and the Longitude 130° 27' East of Greenwich. The entrance to Port Cockburn is at the north-west extremity about five miles in extent. It affords most excellent Anchorage within pistol shot of the Settlement. A stream of fresh water sufficient for any supply runs close to the Fort. The climate is of course very warm but the daily sea breezes render it really delightful; and the detachment under my care prove it to be healthy at least for the few weeks that have passed since our arrival. The island is low and very thickly wooded in every part. This is the period that we are expecting the rainy season with the Western

Monsoon; and I suppose we shall be visited by the Malays in a short period. We are in perfect security, and as a depot for the produce of the Archipelago it will answer every purpose. Representations should be made to the Emigrants from China to induce them to settle amongst us. Our communications with Sydney can scarcely be by any other channel than the Isle of France at least for some time to come.

Attacks by Pirates.

Trading relations were established with merchants in Coupang (Koepang), Timor. In this way numerous buffaloes were introduced to Melville Island, and although there was high mortality during transport and after their arrival, they did become firmly established on the island. But this trade was not without its hazards. The schooner

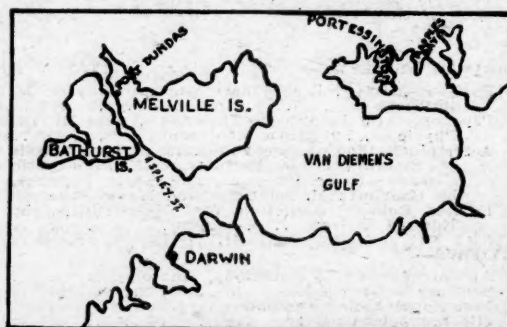


FIGURE 1.

Lady Nelson had been attached to the settlement for trading purposes. She left Fort Dundas on February 9, 1825, and never returned. The East India Trading Committee sent out the brig *Stedcombe*, under command of William Barns, to acquire an early share in the expected trade. She was chartered to bring buffaloes from Timor, and sailed on February 23, 1825, under command of the mate Bastell, Barns remaining in the settlement. Nothing was heard of her for some years. It was later established through Dutch sources that the *Lady Nelson* was anchored off the island of Aluta, bartering muskets and ammunition for tortoise shell and cattle, when she was invaded by pirates and every member of the crew was killed. The ship was then run ashore and burnt—a sad ending to twenty-six years' faithful service.¹ The *Stedcombe* was taken by pirates off Timor Laut 60 miles east of Timor—all the crew were killed with the exception of two apprentices. One of these subsequently died, and the other—John Forbes—was rescued by Captain Watson, of the *Essington*, in 1839. Watson enticed one of the local chiefs on to his ship and threatened to hang or shoot him unless Forbes was given in exchange. After three days' bargaining he succeeded in rescuing Forbes, who returned to England but came again to Australia as a seaman. He lived for a time in Williamstown near Melbourne, where he was known as "Timor Joe". In 1857 he became ship keeper at the Seamen's Bethel in Melbourne, and died there in 1877, aged 71 years.

After these misadventures, and in the light of other unfavourable reports regarding the settlement, the trading committee lost all interest in it, although they had planned an extensive scheme of colonization. William Barns was unpopular in the settlement because he paid soldiers and convicts for work done by giving them issues of rum which caused misconduct and insubordination. After the loss of the *Stedcombe*, Barns went to Sydney and offered his services in any official capacity, but Sir Ralph Darling, because of his conduct at Melville Island and earlier in

¹ "Apsley St." in Figure 1 should be spelt Apsley Strait.

² The *Lady Nelson* was constructed in England in 1800 at the request of Governor King to the design of Captain John Schanck, one of the Commissioners of the Transport Board of the Admiralty, to meet the need for a vessel of shallow draught to explore bays and rivers. It had been fully utilized in exploration and survey work on the southern and eastern coasts, was the first vessel to sail west through Bass Strait and the first into Port Phillip, and had taken Governor Macquarie to Hobart.

Madagascar, rejected his application; he described Burns as an unprincipled adventurer.

The Natives.

The early optimism gradually faded. It became evident that the settlement was badly sited; navigation was very difficult because of reefs, sandbanks and strong tides which caused occasional wrecks. The natives were a constant menace; it was never possible to establish friendly relations with them and they were always ready to spear the unwary wanderer. They appeared to be a much better type physically than those found near Port Jackson.

They are well formed about the bodies and thighs: their legs are small in proportion: heads are flat and broad with low forehead and the back of the head projects very much: the hair is thick, strong and jet black. Eyebrows and cheekbones are very prominent, with thick projecting white teeth: chin small, face much contracted at bottom. They have the Septum of the nose perforated, wear long bushy beards, and have their shoulders and breasts scarified and frequently raised into ridges. All those who reach the age of puberty are deficient of an upper front tooth. The colour of their skins is rusty black, and they go about perfectly naked.



FIGURE II.
Ruins of Fort Dundas (1938).

They cover their bodies with grease: it is supposed to secure them from the piercing sting of sandflies and mosquitoes, and their bodies smell so strongly that even the cattle used to detect them at half a mile distance and gallop off in great apparent alarm. On special occasions they paint themselves with red or white pigment (Campbell, 1834).

They stole anything they could lay hands on—they killed buffaloes, pigs and goats that were imported—they interfered with the exploration of the island which was difficult at any time because of the swampy nature of the country—they prevented augmentation of the scanty diet by fish and game. The mangrove swamps lining the strait provided breeding grounds for multitudes of mosquitoes. White ants destroyed their buildings and even their boats.

The interior of Melville Island is very difficult of access in consequence of almost impenetrable mangrove swamps and close forest. When seen from the sea the island has a pleasing appearance in consequence of its gently undulating surface and being thickly wooded: but when on shore its beauty vanishes into a monotonous series of mangrove swamps and forest, with trees of long bare trunks and very scanty foliage and salt water creeks, speedily surfeiting the most ardent admirer of Nature. Excursions into the interior are attended with excessive fatigue and much risk, the leading causes of which are the myriads of sandflies which torment the traveller and the constant alertness demanded to guard against the hostile natives. (Campbell, 1834.)

The main object of the settlement was to trade with the Malays, but there was no trepang or pearl shell to attract them; in addition they had been told by the Dutch that the island was infested with pirates. For these very good reasons the settlement was never visited by Malays. The

life was monotonous, communication with the mainland was infrequent, supplies and particularly medical stores were often deficient, the climate was unpleasant, the work was hard, the diet lacked variety and, as appears from the subjoined report of Dr. Turner, the sick rate was high.

Scurvy.

Fort Dundas,
Melville Island.
25 May, 1825.

Dr. Turner to Major Ovens:

Sir,

I have the honour to forward for His Excellency the Governor a return of the sick in this Colony. I regret that its extent is greater than could have been expected under usual circumstances, and I beg to state that the deprivation of nourishment in the supplies of the Colony has operated equally to cause the principal disease



FIGURE III.
Ruins of moat at Fort Dundas (1938).

scurvy, as to retard and in some instances to prevent, the cure of it. Exhaustion from labour in a Tropical Climate and exposure to damp during the rainy season have been of much injury under that privation, and acted as exciting Causes of the Disease, to which the Military in consequence have been much less subject than the Prisoners.

No supplies of fresh meat, fish, turtle, or kangaroo have been procured and the growth of vegetables has been unproductive. With a few exceptions this has been the state of the detachment since it quitted New South Wales.

The supply of Lime juice was soon exhausted as also the less efficacious remedies of mineral acids and Cinchona Bark. I have since used a solution of Saltpetre and vinegar with some good effect. I am happy to observe that sickness is now much abated. Of the few men who remain in hospital the greater proportion are doing well: three or four inveterate cases of Scurvy I expect no favourable termination to: and should the Colony not be able to obtain the necessary supplies I apprehend most serious results from a Relapse of the Disease taking place with those men who have been discharged.

I considered it my duty to represent to the Commandant the state of the sick. The preserved meat was in consequence issued in the proportion of two pounds and a half weekly to each man, and a daily allowance of Spirits to the Prisoners, substituting farinaceous food for a proportion of the salt meat when the preserved meat had been used. Much benefit was derived from these changes in the rations and a good weather-boarded Hospital containing sixteen beds was finished in March. Considering that nearly one half of the men in the Colony were for some time on the sick list, the greater number afflicted by a putrid disease, the principal cause of which was uninfluenced by locality and the privations that they are exposed to, the absence of any Endemic Disease and the few casualties that have occurred are proof of a very healthy and salubrious climate.

I beg leave to submit for the consideration of His Excellency the importance of affording to this Colony the benefit of an Assistant Medical Officer as the duties are very responsible and arduous. Should sickness or any other circumstance deprive the Colony of the services of the Medical Officer, no means are presented of replacing him but within a very long period. The probable injury that the Colony would sustain under such circumstances cannot be easily estimated.

I trust that His Excellency will approve the execution of the charge with which he has Entrusted me.

I have, etc.

CHARLES TURNER, M.D.,
Assistant Surgeon Royal Artillery H.P.

Major John Campbell.

In September, 1826, Captain Barlow rejoined his regiment which was ordered to India. Of the 126 personnel left by Bremer at the establishment of the settlement, 12 (eight soldiers and four convicts) had died when Barlow departed; two of these were drowned and one was killed by natives. The new commandant was Major John Campbell of the 57th Regiment, a detachment from which relieved the first garrison, and at the same time Dr. John Gold relieved Surgeon Charles Turner. Apparently it had been rather difficult to persuade any medical officer to volunteer for this inhospitable area, and it had been necessary to represent local conditions to higher authority in London, for under the date March 31, 1827, Earl Bathurst wrote to Governor Darling:

I am not surprised at the difficulty which you have found in getting a competent person to accompany the Detachment in the capacity of Surgeon and therefore what would have been a proper compensation in ordinary cases cannot serve as a guide in the present instance. Upon this principle I am induced to sanction the allowance at the rate of a guinea a day which you have assigned to Mr. Gould [sic], who has undertaken the duty of Assistant Surgeon although the rate is very high as compared with the pay of the Commandant and with the amount of the remuneration usually assigned to persons filling similar situations.

When Dr. Charles Turner heard of the increased remuneration paid to his successor, he made appropriate representations to the Colonial Secretary, as a result of which the amount of his pay for his period of service at Melville Island was increased from £238 already paid to £634. At the same time he was advised that:

The Governor trusts that your long detention at Melville Island in the medical charge of the soldiers and marines as well as the civil establishment there, will not be injurious to your interests there, or interfere with your chances of promotion in the Service to which you belong, as that detention was quite unavoidable notwithstanding your repeated applications to be relieved. I am to add that His Excellency has reason to be highly satisfied with your conduct during the time you have served under the Government.

Campbell and Gold were both magistrates and sat in judgement together, but were sometimes at variance.

Doctor Gold has had a difference of opinion with me respecting my power as Commandant in instigating the sentence of corporal punishment and hard labour awarded prisoners of the Crown who are brought before us when sitting together as Magistrates: and although I have met his objection for the time being in order that business should not be interrupted, until my doubts are decided by a reference to the Chief Justice, yet

Doctor Gold has intimated his intention of submitting a correspondence he entered into on the subject to His Excellency. This measure seems to be quite unnecessary as the question of legality can be ascertained without troubling His Excellency. I shall at present forbear from any further observation. (Campbell to Colonial Secretary.)

At the same time Campbell repeatedly expressed his complete satisfaction with Gold's performance of his medical duties. Campbell was a man of considerable vigour who endeavoured to improve the administration and introduce a new spirit into the settlement. He tried in particular to improve the cultivation of fruit and vegetables—there was a constant interchange of seeds and plants between the Botanical Gardens in Sydney and Melville Island—but the soil was very light and frequent torrential downpours with cyclonic conditions defeated his efforts. However, in spite of the discouraging reports he received from his predecessor, he wrote:

I was not of a temperament to be discouraged by these accounts, but on the contrary rejoiced that I had been placed in so novel and interesting a situation, and looked forward with a pleasing anticipation that patience, exertion, and industry would soon bring the Settlement to answer the intentions of the Government in having formed it.

Yet about a year later he was to write:

I have had a complete surfeit of this Island and sincerely hope that His Excellency will order me to be immediately relieved. My fatigues here are excessive, and I feel quite upset by the climate and disagreeable duties imposed upon me.

Health Conditions.

Most of the information we have regarding health conditions in the intervening period are derived from reports sent by Campbell to the Colonial Secretary.

April 8, 1827. About the end of December our little Colony became very sickly and between that period and the beginning of February we buried five of the military and one prisoner. One of the military (Corporal Brown of the 57th Regt.) died of having incautiously eaten some castor oil berries. The others died of fever after 2-3 days illness. I think the protracted change of the Monsoon had rendered the system more susceptible to disease, and some incautious exposure either to the sun or the damps of night had originated the illness. Many others were suddenly attacked, but I am happy to say that no other casualties occurred. As soon as the rain had well set in, the hospital became clear and since then we have continued tolerably healthy. I am glad to say I have it in my power to say that Dr. Gold's attendance to the sick has been very satisfactory. I most certainly cannot consider this so healthy a place as I was led to believe when I relieved Captain Barlow: although we have not had many cases of very serious illness, yet mostly every individual has been in hospital and some 3 or four times. Hemeralopia and dysentery appear to me to be the principal and probably the only local diseases.

June, 1827. We have constant cases of dysentery and Hemeralopia—the latter disease is very prevalent amongst the soldiers: sometimes one third of the number on a guard are afflicted with it and yet my limited force will not allow me to dispense with their night duties. Gales at the beginning of April have completely destroyed our crops of maize and millet and very much retarded the growth of vegetables.

In November and December, 1827, there were 12 cases of fever, five of which were fatal; the patients died 24 or 30 hours after being admitted to hospital. Campbell was greatly interested in the health of his troops and kept for his own and official information a record of hospital admissions. In a memoir to the Royal Geographical Society of London he wrote:

The prevailing diseases were—intermittent, acute and typhus fevers, constipation of the bowels, vertigo (frequent), dysentery, diarrhoea, rheumatism, scurvy and nectalopia—the latter disease was very common. The cases of typhus and acute fever appeared at the beginning of the wet season: and when the winds were variable during that period many were suddenly seized with sickness, violent griping and delirium. We could not account for the prevalence of nectalopia or as it is sometimes called moon blindness. Salt meat was certainly generally issued to every person but they had

besides a wholesome proportion of flour, rice or bread, with vinegar, tea, sugar, and a small quantity of vegetables: nor were the settlers exposed to any extraordinary glare from sand or water, and many who had the complaint used very little of their salt meat. Even when fresh meat was issued this disease prevailed to a considerable extent.

He discussed the incidence of scurvy with all the zeal of the amateur and decided that both at Melville Island and Raffles Bay it was an endemic disease and depended more on climate and local causes than on diet. He was convinced that in the absence of lime juice and fresh vegetables an issue of spirits in both settlements had been effective in preventing or curing the disease.



FIGURE IV.
Melville Island natives.

The Settlement at Raffles Bay.

As reports from Melville Island continued to be increasingly doleful, the Home Government realized that the settlement there could not succeed and decided to make an effort to establish a footing elsewhere in northern Australia. Accordingly, in June, 1827, a party was landed from H.M.S. *Success* (Captain Stirling) at Raffles Bay, 13 miles east of Port Essington, under Captain Smyth as commandant. The medical officer was Cornelius Wood, M.D., a friend of Dr. James Mitchell, of the General Hospital, Sydney. There were, in addition, 30 "rank and file" from the 39th Regiment, 14 Royal Marines and 20 convict mechanics and labourers. The brig *Mary Elizabeth* was attached to the settlement. Here the climate seemed healthy and agreeable and the soil tolerably good; there were abundant fresh water, timber of moderate quality, clay for bricks, and rich nutritious grass. Here Fort Wellington was established.

The early days of this settlement were full of trouble. Smyth wrote to Governor Darling under the date October 30, 1827:

Up to 6th August only one instance of sickness appeared which subsequently discovered itself to be the scurvy. From that period to the 15th of October 32 cases were admitted to Hospital and put on Hospital diet, the greater part of whom are serious cases of scurvy, some few with ophthalmia, ulcers and rheumatism and one man who was speared in the back by natives: from the 15th to the 30th October ten more cases have appeared and I have considered it necessary to place them on the fresh meat diet and treat them as others were treated. —14 have during the whole period been discharged, 3 of them cases of scurvy, the others fever and ophthalmia cases: the men discharged from scurvy are by no means well, and I fear a change of Regiment will throw the disease into force again: nearly one half of the garrison are affected more or less with Haemalopia or night blindness.

This melancholy change he could not account for unless it was due to the climate. The heat was excessive and everyone was working very hard to prepare for the wet season; however, this could not be the only factor, as some

of the officers' servants were affected, whose work was by no means strenuous and who shared in the additions to the dietary contributed as a result of hunting.

These cases of scurvy are very bad, their limbs terribly swollen, hard as sticks and black, unable to assist themselves without crutches, eleven or twelve pairs of which are unhappily in use. Lime juice alone was of any avail and of this only 104 pounds had been shipped—four pounds were lost by breakage and the remainder hopelessly insufficient to meet the demands.

Death of Dr. Wood.

You will observe that I have named the number of cases admitted into the Hospital up to the 15th October, on which day I have the melancholy task of announcing to you the death of Staff Assistant Surgeon Wood who was attacked on the 15th of September with (what he denominated himself to be) the Syroclia or simple continued fever: a very considerable degree of Delirium attended him except at intervals and on the 19th day from its commencement he ceased to exist. I had observed that a very considerable debility appeared in him almost from the period of our arrival, in aggravation of which I think he took more exercise than was prudent. Dr. Wood's alarming state with the awful increase of the scurvy in the Garrison induced me to send the "*Mary Elizabeth*" on the 1st October to Melville Island requesting that Dr. Gold might be sent to my assistance. On the 27th Major Campbell and Mr. Radford of the Commissariat arrived here in the *Mermaid* ketch, but I am grieved to say without the surgeon and without lime juice.

Murder of Dr. Gold.

It was indeed unfortunate for Dr. Gold that he did not accompany Major Campbell to Raffles Bay. The voyage of 130 miles from Melville Island eastward had occupied



FIGURE V.
Melville Island graves.

21 days, but the return trip could be accomplished in three days and Campbell wisely decided to take 14 of the worst patients back with him, but he must have been profoundly shocked when he arrived at Fort Dundas. The news was brought to Port Jackson by Samuel Dowsett, in command of the *Mermaid* ketch, whose statement follows:

On the 5th November arrived at Melville Island when came Lieut. Hicks and told the affecting tale that on Friday his wife died and was buried the same day; that Mr. Green Storekeeper, Dr. Gold and others attended the funeral; that they returned at near sunset when Mr. Green and Dr. Gold went out to walk, and had not proceeded far when lamentable cries were heard: when numbers of the people from the Settlement ran to where the cries proceeded from, and after some search, found the body of Mr. Green who had been barbarously murdered by the natives with a spear through his throat, and several spear wounds in different parts of his body: but the body of Dr. Gold was not to be found. Many of the Military and others was in search the whole night and at 6 o'clock in the morning found the body of the doctor in a most horrid state, having received upwards of thirty spear wounds, six of which remained in his

body. On the 6th Major Campbell gave the orders to prepare for Sydney and on the eleventh embarked eleven sick and nine other passengers. The same day sailed. Before he was out of sight of the Island died Thos. Power private of the 39th Regt. and on the 19th Thos. Upchurch private of the 39th Regt. The westerly Monsoon having set in I was sixteen days beating to Timor where I remained one day and filled up my water and sailed from that port on the 27th November.

Campbell was very incensed when he found that Dowsett had gone to Timor on some private business when he had been directed to proceed to Sydney with all dispatch. Gold's death made it essential that the seriously ill patients should be transferred to proper hospital facilities as rapidly as possible, and he asked Governor Darling to deal appropriately with Dowsett.

After the death of Gold there was general depression at Melville Island. A seasonal increase of sickness was expected and they had to depend on Lieutenant Bate, who had some vague ideas of treating disease and who, with Campbell, had purchased Gold's medical books. But neither Bate nor Campbell was well, and Campbell was longing for the happy day when he would be relieved. Storms had again destroyed their vegetables and crops. The *Mary Elizabeth* was sent to Koepang for buffaloes, pigs and vegetables, and Lieutenant Hicks was told that if he met any medical officer he was to engage him, ensuring him a liberal salary for six months. The natives continued to be increasingly troublesome. However, their worst fears were not realized, the general health of the community was fairly good. There were a few cases of fever and some scurvy, which was controlled by lime juice purchased in Koepang, and there were only two deaths—one from typhus and a second from a "rapid decline". During Campbell's tour of duty there were 14 deaths—three men were speared by natives.

Captain H. R. Hartley.

In June, 1828, Campbell was relieved by Captain H. R. Hartley. In the meantime a new medical officer had arrived—Dr. William Sherwin,² a native of Parramatta, who having served as apprentice to Dr. William Bland had gone to London to qualify as M.R.C.S., and on his return to Sydney had accepted the appointment to Melville Island. His first impression must have been quite favourable, as on May 8, 1828, he wrote to the Colonial Secretary requesting that accommodation be arranged for his sisters, Sara and Eliza, on the same vessel as his brother John, who was proceeding to Melville Island, expressing his anxiety as a brother for the welfare of his sisters "left unprotected in such a Colony as N.S.W."

Hartley soon realized the magnitude of the task he had undertaken at Melville Island. He wrote on September 8, 1828:

The non-arrival of a vessel with general supplies from Sydney has filled the minds of our suffering community and diffused a tinge of still deeper gloom, and depression than what is wont ordinarily to shroud and darken this dreary remote and unhealthy settlement. Every person of moderate information knows that intermittent fevers, rheumatism, and various derangements of the liver are the principal and prevalent diseases in tropical latitudes, and consequently that such medicines as the arsenical liquor, adequate supplies of colchicum, and large quantities of salts are not only desirable, but of the greatest importance and most absolute and imperative necessities.

The disadvantages of Melville Island are daily more apparent—a malignant unhealthy climate, a dangerous and incommodious harbour, a sterile and ungrateful soil. It seems vain, delusive, and chimerical, to expect that Melville Island can ever become by means of, or while peopled by Europeans, either the resort of trade, the emporium of commerce, the seat of laborious industry, or the theatre of healthful and successful enterprise.

He did, however, add:

Dr. Sherwin continues to discharge his medical duties in a very creditable manner. He has been particularly successful in his practise since his arrival upon this settlement.

² When the settlement was evacuated, Sherwin in 1829 established the first entirely private practice in Parramatta. He remained there until 1840, when he moved to Sydney. In 1862 he qualified as F.R.C.S. and subsequently lectured on and practised homeopathy. He died in 1874.

Meantime, Sir George Murray had written to Governor Darling on May 31, 1828:

In view of Stirling's favorable report on Raffles Bay and the great disadvantages of Melville Island—unhealthy climate, mangrove swamps, oppressive heat, and absence of Malays, you will take the necessary steps to remove the latter to the former place accordingly.

Captain Collett Barker.

At Raffles Bay, Captain Smyth was never a very successful commandant, and latterly was never in good health; accordingly he was very happy in April, 1828, when he was relieved by Lieutenant Sleeman of the same regiment (39th), who was accompanied by Dr. R. M. Davis, assistant surgeon. On September 14, 1828, Captain Collett Barker assumed command. Under his control, conditions in the area rapidly improved, and after 15 months' residence Dr. Davis reported:

There is no endemic disease here. The climate of this place surpasses every other, as far as I know, which is equally as near the equator. The prevalence of sickness which took place after the formation of the Settlement, can be accounted for as arising from more satisfactory causes than that of climate. The people were unavoidably harassed in clearing ground, felling timber, and building huts, at the same time that the salt provisions with which they were supplied, proved to be of very inferior quality, and hardly fit for use; these with annoyances from the natives, and the gloom and despondency which the death of the surgeon excited, quickly operated in producing scurvy, which was the principal disease among them here.

The food was now much better in quantity and in quality—the government garden was producing quantities of vegetables, and more and more of the people were growing their own supplies. It was now realized that both here and at Melville Island much more could have been done to reduce, or prevent, the incidence of scurvy by the utilization of the many indigenous roots and vegetables which had been effective elsewhere. Control of scurvy had not been immediately attained, and some of Barker's early reports were somewhat pessimistic, but he pushed on vigorously with the establishment of quite an extensive orchard of tropical and other fruits. He was an excellent administrator and was successful in establishing friendly relations with the natives, by whom his authority was now unquestioned and who eventually moved quite freely about the settlement, although they still needed careful watching because of their acquisitive habits.

The natives resembled in many respects those of Port Jackson but were better physical types, more alert, intelligent and savage. They wore no clothes: their skin was raised in numerous cicatrices caused by gashes particularly on the breasts and thighs: an upper front tooth was knocked out, the nasal Septum was perforated and on special occasions a piece of wood or bone or even a feather was worn in it.

Dr. Davis described some of their methods of medical treatment during an epidemic of acute bronchitis:

Their symptoms were very severe. The only remedies we saw them employ were (during the severity of the acute stage) cords tied tightly round their heads and frequent pouring of cold water on the head. On one occasion the Chief lay down on the sand and caused one of his tribe to stand on his head—most probably for the purpose of deadening the acute pain from which he was suffering. Several of these people have deep circular impressions, on their faces in particular, as if caused by Smallpox. From the want of making myself understood, the nature of the disease which produced these marks was not ascertained. It evidently bears a resemblance both in symptoms and consequences to Smallpox, being an eruptive disease (attended with fever), and leaving impressions: it frequently destroys the eyes.

Visits to Fort Wellington by Malays became increasingly frequent; from March to May, 1829, 34 proas with a total personnel of 1056 arrived. They were given every opportunity of collecting and curing trepang, and having been assured that they would not be molested by natives they announced their intention of returning in increasing numbers in the following season, and in some instances of settling at Raffles Bay. It seemed likely that there would be an influx of Chinese also from Batavia. All the problems

that caused failure at Melville Island had now been solved at Raffles Bay.

Unfortunately, reports of these successes did not arrive in London in time to counteract the earlier gloomy accounts forwarded by Captain Smyth, and Sir George Murray had written on November 1, 1828, the following direction to Governor Darling:

On further consideration, and as all the Settlements are so unhealthy, as the hostility of the natives is so marked, and in view of the risk to life, the expense, and the absence of trade, it has been decided to withdraw from Raffles Bay also.

Most of the stock, stores and plants had been removed from Melville Island to Raffles Bay at the end of March, and the commandant, soldiers and prisoners from Fort Dundas arrived in Sydney by the barque *Lucy Ann* on June 10, 1829.

Evacuation of Raffles Bay.

A subsidiary reason for the establishment of a settlement in northern Australia was the necessity of providing a haven for survivors from shipwrecks, which were of frequent occurrence in this badly charted area. This received belated support from the fact that the ketch *Mermaid*, carrying to Captain Barker a direction to evacuate Raffles Bay, was wrecked on the outer barrier reef. The crew took to the whale boat, which was picked up by the schooner *Admiral Gifford*; they were transferred to the *Swiftsure*, which in turn was wrecked off Cape Sidmouth, and both crews were brought to Raffles Bay by the brig *Resource*. There was also in the area at that time Dr. T. B. Wilson, whose ship, the *Governor Ready*, had been wrecked in Torres Straits some weeks previously. Both Wilson and Captain Laws, R.N., who had had extensive experience in the tropics, considered that the climate at Raffles Bay was the best they had lived in. With few exceptions the community at Raffles Bay would have been very happy to remain there, and the decision to quit was particularly disappointing to Barker, to whom the success of the settlement was mainly due. It was abandoned when all the conditions essential for its success had been fulfilled, but in view of the slow communication, and in the light of information available to the Home Government, the decision to quit could be justified. Barker, however reluctant, had no option but to leave. His last act was to erect over the grave of Dr. Cornelius Wood a stone sent from Sydney by his executor, and this melancholy duty completed, on August 31, 1829, a convoy of three vessels sailed west from Raffles Bay; the stores and most of the personnel for Swan River and the remainder for King George's Sound (Albany), where Captain Barker was to take up the appointment of commandant with Dr. R. M. Davis as his assistant surgeon. Captain Barker remained at King George's Sound until the end of March, 1831, when he sailed for Sydney on the schooner *Isabella*; he interrupted his voyage, by direction, to make a careful examination of the mouth of the River Murray, which had recently been discovered by Sturt, and whilst carrying out this survey he was killed by Encounter Bay natives on April 30, 1831.

PSYCHOSOMATIC DISORDERS: THEIR TREATMENT BY THE PHYSICIAN.

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If only the general practitioner had sufficient time at his disposal, and sufficient instruction and encouragement from the right sources, he is the man who might, above all others, above the hospital official on the one hand, and the psychiatrist or analyst on the other hand, be in the position to investigate the enormous new and developing field in medicine, namely that of psychosomatic illness, an appreciation of which, in my opinion, will become the next great advance in medicine.—BRUCE (1955).

In the past, good physicians taught that a patient was to be regarded as a human being rather than as an illustrative case of a disease. However, little more was implied than that the approach should be tactful and sympathetic, and the only instruction given was that of example. More recently patients, as well as their physicians, have become increasingly aware of the role of psychological factors in certain organic diseases, so the need for an appreciation of emotional states has become more obvious. If one is prepared to go further and accept the fact that all bodily functions in sickness and in health are psychosomatic, then a good doctor should thoughtfully assess the emotional content in any illness, and should acquire the skill to deal with what he has found. The psychiatric techniques that have been developed to treat neurotic patients are available for this use. However, the methods described in most textbooks are designed for trained psychiatrists, and some in addition require the employment of aids that are available only in a clinic. It is the purpose of this article to suggest means by which these methods may be modified for use by the physician in the treatment of psychosomatic disorders.

It is not proposed to define what is a psychosomatic manifestation, disorder or disease. This has been done elsewhere (Robinson, 1956), and some of that material is reproduced in the diagram (Figure 1), which was designed to classify and exemplify the somatic manifestations of emotional change. In it are depicted simple manifestations of emotion leading directly to certain functional syndromes, and these are linked with structural diseases. In all of these the disturbances are visceral, and the differences are shown as of degree rather than of kind. In conversion hysteria, on the other hand, the manifestations are in organs controlled by the peripheral nerves. The orifices and the skin have a dual nerve supply—somatic and autonomic—and their disorders can belong to either group. Therefore in the diagram, examples of these are enclosed in the inner ring. The term psychosomatic disorder or disease, in its limited and usual sense, is applied to such psychogenic visceral disturbances as are included within the outer ring, although in a broad sense the word psychosomatic could be applied to conditions under all four headings.

In practice, psychotherapy in one form or another is needed in the treatment of any of the above-mentioned conditions. This is not always easy, and to see why, it is necessary to discuss some general principles.

General Principles.

1. No disease has a single cause; any one disease must be regarded as representing the resultant of the action of a number of forces. This statement is especially true of psychosomatic disorders, and they should be treated with this in view. It has been shown, for example, that exacerbations of amoebic dysentery may be brought on by emotional causes—here both emetine and psychotherapy are needed; the man with a "nerve rash" needs psychotherapy as well as a pot of ointment, and an asthmatic patient requires antispasmodics, breathing exercises and psychotherapy. All patients are best treated by a combined approach.

This being so, how can it best be done? Can one doctor combine the roles of physician and psychiatrist? To what extent can he master both disciplines? Must he be an amateur in one or both? These are important questions. In America, one hears, the patient may consult his psychiatrist and his physician, with the former in the controlling role, but I think that most of these patients can and should be treated by one person alone. No one person can follow all developments in both fields, let alone in one of them, so he must be prepared to refer some patients to more specialized psychiatrists and others to more specialized physicians. That is inevitable.

2. In some diseases a major alteration of the patient's personality or attitudes would be required before a complete cure could be obtained. These are the difficult cases. They are well exemplified by ulcerative colitis. I have heard a competent psychiatrist tell of one of his patients who was not cured after three years of regular psychotherapy. This was perhaps an extreme example, as some patients can be given insight much more rapidly and through it gain

good health (Robinson, 1954), but it illustrates the difficulty in obtaining a cure of this condition by orthodox psychotherapy alone. In practice, much more success is obtained by using a modified method, aimed first at relieving the immediate attack by superficial psychotherapy, and then towards preventing relapses by directly modifying the environment (Paulley, 1956). If the external *milieu* cannot be altered, the most useful alternative is medical treatment combined with a supportive therapy based on a knowledge of the psychogenesis of the disease.

Patients with asthma present a similar problem, which was well illustrated on an occasion when I was able to terminate a *status asthmaticus* in one bedside session of psychotherapy. In retrospect, I doubt if much more was achieved in that case than could now have been done with cortisone, for the patient, like many other asthmatic patients, gained little lasting insight into the emotional background of her disease—a background that seemed obvious to the observer. A complete cure is not always possible.

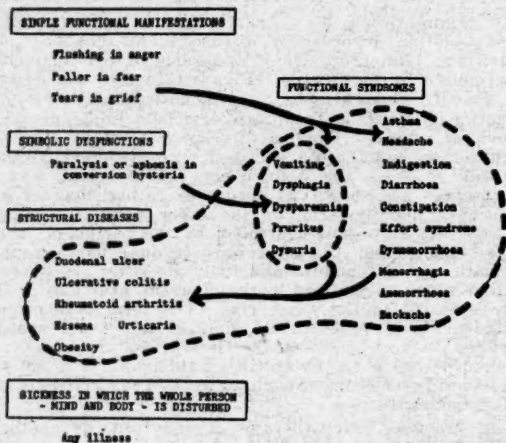


FIGURE 1.

Somatic manifestations of emotional change.

3. In some diseases a stage will be reached when the damage is irreversible, as exemplified by cases of essential hypertension with permanent changes or complications. At an earlier stage the changes are functional and may be reversed by drugs or psychotherapy. Earlier still, a wise practitioner may prevent their onset. Recently, too, articles have appeared on psychosomatic aspects of such conditions as carcinoma of the breast and cervix (Wheeler and Caldwell, 1956) and of various reticuloses (Greene, 1954). These, of course, must be treated by orthodox methods. In such cases insight may be found too late and then psychotherapy may be meddlesome. It is not always wise to break up a neurosis or a psychosomatic symptom or to disturb a *status quo*.

4. The readiness with which insight is gained differs in patients with different disorders. This fact is important, and allowance must be made for it when treatment is being planned; for example, patients with functional headache will commonly realize the immediate emotional cause on the first visit. Those with a duodenal ulcer will see equally quickly that their problem is one of insecurity—indeed, here the approach can be quite direct, as one merely clarifies the issue by putting into words what they already intuitively know. However, many with asthma and ulcerative colitis, and some with skin diseases, never seem to understand. At each interview they may appear to admit to the immediate emotional cause of the most recent attack, but any knowledge gained is soon mislaid. This inaccessibility is presumably due to the nature of the basic conflicts and defences.

Aims and Aids.

There is, of course, no one answer to the problems discussed above—one day there may be. In the meantime

a method is needed, available to the physician or general practitioner rather than to the psychiatrist, which will be effective in most of these cases. It has to be better than orthodox methods, and should be reasonably short, especially for less severe disorders.

It seems reasonable for a physician to make relief of symptoms the first, immediate or practical aim, prevention of recurrence the second aim, and reconstruction of personality the third. A psychiatrist might reverse this order, and an analyst certainly would. The first two of these aims—relief of symptoms and prevention of recurrence—can often be achieved quite quickly and without any prolonged psychotherapy. Furthermore, with this help, the patient may gain some insight into more basic problems and find a way to deal with them.

To talk of dealing in three or four sessions with what is essentially a psychiatric problem lays one open to the charge of having a very superficial appreciation of the issues involved. I do not think this is necessarily so, provided one is clear about one's aims and about the limitations of the method used. It is commonly said that the danger of superficial methods is that when one symptom or disease is banished another will take its place. That may be so, yet in my experience it is not really common. Most patients seem to be able to carry on when they have been helped over the main hurdle. In this we are aided in several extraneous ways. Thus:

1. If a patient can be helped through the immediate series of crises, the life situation may alter so that he may become free from symptoms without having gained full insight. This is notable in war, in which the stress is above, or different from, that in ordinary life. Civilian parallels are easy to cite; a frail bark can be seaworthy in calm water.

2. If a patient improves a little—even if only from sedation alone—the attitude of those around may alter, and this will help him further, and so on. A vicious circle is broken.

3. A third aid is that most persons do grow more mature on their own account—regardless of our help. Thus it is that patients may "grow out of" certain diseases such as asthma or migraine. Often very few words spoken at the right time may be of great aid in facilitating this maturation; a tiny seed may crystallize a super-saturated solution.

A Solution.

Here, then, are some of the problems; how can they be solved? On the one extreme, orthodox medical treatment is not the answer any more than a full analysis is on the other. Whereabouts in between is one to settle? The answer will be "you here" and "I there". It is proposed, therefore, to discuss one solution which seems a reasonable compromise for a physician in the circumstances as they exist here at the present time. It is not one that will suit all personalities or persons, but it may form a basis on which to build an individual method. This solution has been devised or has grown over the years with the following practical points in view.

1. It had to be suited for use by a physician rather than a psychiatrist. It was designed, therefore, for use in the treatment of any patient, but especially for those who would be reluctant to seek aid from a psychiatrist, even if not well served by orthodox medical methods. That is, it was for those with the disorders under discussion and also for those with the less severe neuroses.

2. The method had to be one which would allow the psychotherapy to be introduced by stealth. If a patient chooses to attend a psychiatrist, he has already acknowledged that his illness is a nervous one and he expects to be "probed into" at length. This is not so when he comes to a physician, and further, some patients resent the implication that there is a nervous component in their illness, and that help need or can be given in their case. Unless there is much conscious emotional distress present—and in psychosomatic disorders there may not be—it is difficult for a physician wholly to follow orthodox psychiatric methods or to persuade patients to accept them.

They will cease treatment when the physical symptoms are relieved, even if ideally a prolongation of psychotherapy seems desirable.

3. From the psychiatric point of view, a primary purpose of therapy is to relieve unconscious disturbance. This disturbance may manifest as: (a) conscious emotional symptoms, such as feelings of dissatisfaction, tension, anxiety or frustration; (b) a psychogenic visceral disease—that is, a psychosomatic disorder; (c) symptoms of conversion hysteria; or (d) a psychosis. These may occur in pure or mixed forms, but in all, the unconscious factors form the essential basis. Thus an interview is not what it appears on the surface, and symptoms and explanations as presented by the patient may provide poor clues to real causes. The treatment therefore had to be one which could help the patient to gain some insight into his underlying problems. Help may be derived from those extraneous aids already mentioned and from general support, but ideally the patient must come to see through the screen of his rationalizations.

Various methods have been evolved for achieving this result. The one that is used will depend on the skill, convictions and personality of the therapist, on the attitudes and intelligence of the patient, and on the nature and severity of the illness.

The most effective of the shorter methods will be one which allows the patient to talk the tension out of himself to a doctor assigned to the role of a sympathetic, competent and reliable confidant. For the doctor this role is a seductive one. It may lead him into making pontifical utterances regarding morals, or into giving ill-considered advice or facile reassurances. Judgement and discretion may be disturbed, too, if he identifies himself with the patient during the discussion of a problem that seems also his own.

In the type of case being considered, the best defence against these dangers is to use a non-directive method such as that of Carl Rogers (1942), or a modification for use in general practice as that described by Jansen (1954). In these the therapist plays a part of controlled inactivity, interfering only as far as necessary to keep the patient's discussion on emotionally charged topics. He must check himself from bursting in and interrupting the latter's need for self-expression. In early sessions only conscious and immediate problems are presented, but later on the patient may gain deeper insight.

4. Since the method had to be a short one, short cuts in technique were made. These are presented with diffidence, as it is realized that they are directive, but they appear to be an effective means of rapidly reaching emotionally charged material. Thus, if the usual emotional patterns of an illness are known, one should be able deliberately to direct the discussion into useful channels. This knowledge also may assist one to verbalize the patient's intuitions and thus clarify them for him before he has stated them. If these patterns are not known, it does not really matter, except that it may take longer to discover affectively significant topics for discussion or ventilation. Another method, this time based more on intuition than on knowledge, is to state aloud what one guesses regarding the patient's feelings, as, for example, by saying: "You must have felt guilty after doing that." Other short cuts will be referred to later.

5. The method had to be adaptable, so that it could be used also for those cases which at first sight appear to be frankly organic. Therefore opportunities had to be provided at many stages through the interview for an organic case history to become a psychosomatic or a frankly psychiatric one. It will seem that this reverses the orthodox medical procedure. Time is allowed at each of these stages for the discussion of any emotionally charged topic thus discovered. The psychotherapy begins during the history taking and continues *pari passu* with it.

The application of these general principles, aims and aids will now be discussed.

The Interview.

A patient may feel that a first interview is a formidable experience, and as a result the history may not be a full one. Important material may be suppressed until confidence is

gained in a new doctor. Thus a patient with groundless fears of heart disease may be given a stone for bread, if he is sent on his way with only a reassurance that he is physically sound, and one should wonder what really prompts a request for a "general check-up". No patient has "nothing the matter with him", his visit has a cause, even if it is an unconscious one.

To some extent these difficulties can be overcome by beginning the interview with the seemingly innocuous preliminaries of the past and family medical histories and by spending more time than is usual with them. Thus, the interview can be opened by saying: "Before we discuss your present trouble, let us dispose of the past history." This is taken down rather fully and dates are included. A further reason for this care is that with these disorders apparently different past illnesses often will be found really to be a part of the present complaint. The family history will be dealt with next, the dates and causes of the parents' deaths and the age of the patient at these times being especially noted. It is not wise to ask questions regarding the early home life at this juncture unless there is a very easy entry, as one tends to become side-tracked too early from the immediate purpose of the visit.

All this lets the patient settle down and become disarmed, permitting him more comfortably to begin with the immediate problem, and thus serves better than beginning with the presenting complaint as is sometimes done. The majority of psychosomatic disorders can be diagnosed as such during this period, and it is easy to do so tentatively to the patient. For example, if he now complains of pain in the occiput or in the back of the neck, it is often appropriate to say directly: "That is due to tension—do you find it worse when you are over-tired or strained?" If this is so, the situation can be discussed there and then, along more or less non-directive lines. This involves the risk of a mistake in diagnosis, which one should be prepared to take to secure an advantage, for little is lost if the subsequent examination proves the assumption to have been wrong. If the headache is frontal, one may say, after Bostock (1951), "They say that these occur in the conscientious man caught in a trap", and lead on from there. There may have been quite a few clues in the past and family histories as to the nature of the trap and with experience one can usually arrive quickly at the significant one. Frontal headaches are commonly related to persons, and occipital ones to burdensome situations.

Patients with duodenal ulcers provide another example. It is easy to introduce them to a consideration of nervous factors, as most will have already related their symptoms to pressure of work. However, one can go much further and quite directly say: "You know, it is more than that, it is the feeling of insecurity that is the important thing; you work hard because of this." Most will appreciate this at once, because as was said above, one merely puts into words what they already intuitively know. In a short therapy it is purposeless to attempt to go further and to discuss psychoanalytical theory, as patients will not be able to relate it to themselves, and any attempt to do so will lead to embarrassment. For all that, those with duodenal ulcers will understand that "success is a neurosis", and from there they may come to see that they already have what security worldly possessions can give, or that the price they are paying for it is too high. Unless they are emotionally prepared to do so, the charge to take things more easily may increase their feeling of insecurity and thus aggravate the symptoms. As most patients with duodenal ulcers have good insight, all the foregoing concepts can be introduced during the first visit.

In theory, provided disorders are known to be psychosomatic, the usual personality profiles or basic conflicts or the typical dilemmas should not matter, as the mode of treatment would be the same for all. However, a knowledge of the usual patterns for each syndrome is most useful, and these should be taught to students along with the other aetiological factors of a disease. The statement "nervous factors are involved", while adequate in the past, is not enough today. As was indicated above, it is often possible to express the essence of a pattern by a key word, phrase or sentence, and in practice this provides another very useful short cut. Further examples are seen in skin diseases,

in which the patient is often "the righteous man wronged", feeling that "after all that I have done for them, this is the way they repay me", and one can sometimes ask directly: "Who is getting under your skin?" Colloquial phrases such as the last one are very useful, for they lend a comforting naturalness to the interview. Also, as they are often apposite, the recollection of an appropriate one will frequently indicate the nature of the dilemma linked to a symptom. A situation that "makes you sick" is quite different from one that "you cannot swallow"—so that with functional vomiting one will suspect an underlying disgust, and with dysphagia, rejection.

Other useful questions are, "Is it worse when the pressure is on?", and "Is it worse when you are upset?". If the latter, one can then say "In your condition the upsets are often such and such", and lead on the discussion from there. It is advisable to avoid using the word worry. Many who deny having any worries will admit to upsets, or will accept that their symptoms are the result of stress. Tiredness can advantageously be predicted. As this is often the earliest symptom, the time of its onset may be the beginning of the illness. For some reason patients' eyes glisten if they are told that this is not a "healthy tiredness but a weariness". Then one can usefully add, "they say it's not the work, it's the worry that makes you tired", and lead on from there. In terminating such a discussion a very helpful remark is: "I think you have made the diagnosis yourself." After having dealt with the emotional problems, one can differentiate neurotic symptoms from psychosomatic ones by asking: "In ordinary terms how are your nerves? Are you irritable or depressed?"

In this type of interview, psychoanalytical or psychodynamic theory is not so important practically, although a knowledge of it generally, and as related to individual disorders, is of help in directing and understanding the interview (Meares, 1954). It also will enable the physician to understand his own attitudes and may protect him from using the patient to serve his own unconscious needs. Much the same may be said regarding dreams. While nightmares may be diagnostic of fairly severe distress and in a general way provide a clue to its nature, any attempt at interpretation in a short therapy appears meddlesome and is probably made more to satisfy the practitioner than to help the patient. In recent years, psychological presentations have been popular with journalists, authors and playwrights, and as a result it might be imagined that a reasonably intelligent patient would have some knowledge of unconscious mechanisms, such as those of symbolism in dreams. This may be so in a general way, but embarrassment will be caused by brashly referring these general concepts to the individual case. A patient will understand only what he feels to be true, and any explanations should be chosen with this in view, otherwise defensive blocking will result.

Once I used to spend some time discussing the childhood environment, but wonder now whether much benefit was gained except academically. Of course, if emotion is shown it must be followed up to help the patient to relieve his tensions. Otherwise, in a short therapy, one is only offering the patient an intellectual explanation for his illness, or at best a comforting justification for his behaviour. Most is gained by keeping to the current emotional situation, unless there is some obvious reason for going elsewhere for material. In a way, any discussion will help to establish rapport and to provide support, and if it is related to the patient's problems it will give help. Sometimes, on later visits, it does not seem to matter what is said or by whom, provided the level of emotional tension is kept raised throughout the interview.

All the above refers to the presenting complaint. When this has been covered the patient is questioned as a routine measure regarding the other physical systems, the inquiry finishing with the uro-genital system, because this offers associations that provide an easy portal of entry to sexual problems, if these have not been dealt with earlier.

The physical examination follows. This must be thorough, and should be conducted in a detached manner, because the normal defence barriers, such as those between different sexes, are lowered in both patient and doctor after an emotionally charged discussion. This danger is much

greater after this sort of interview than in the ordinary "organic" one, in which emotional issues are tacitly avoided. The general practitioner, with no training to prepare him for this situation, is in the difficult position of being expected to combine the roles of confidant and organic doctor. His usual safeguard is to plead pressure of work when he feels that emotional topics are about to be raised and thus keep his contacts on a "safe" level. The psychiatrist, on the other hand, is trained to meet such an eventuality, and at the most he is expected to make only one physical examination—the initial one. Physicians who deal with psychosomatic disorders are more vulnerable, because they may be less aware of the dynamics of the interview, and because repeated physical examinations may be necessary or desired.

Whenever possible the physical examination should be made on the first visit, as then one can explain that it has confirmed the tentative diagnosis made earlier. When relevant, it is useful now to point out that much of the past history belongs to the present complaint—all being part of an established pattern of reaction. Frequently it will be seen that this has been the first occasion on which an over-all picture has been presented. If one then asks "does all this make sense to you?", the value of the interview can be assessed, and then the question "what did you think was really the matter?" will bring further fears to healthy light. By this stage the diagnosis of a psychosomatic illness has been made and psychotherapy has begun. If necessary the patient is then given orthodox medical treatment, for it must be borne in mind that he is visiting a physician.

An important practical disadvantage of this method is the length of time taken on the initial interview. This will occupy more than an hour. A solution may be to divide this long visit into two shorter ones, but this is less satisfactory, as the emotional charge or tension is always greatest on the first visit and is best used then. Later visits can be much shorter. In the great majority of cases, three or four visits at intervals of two to four weeks are enough to free these patients from symptoms, so that from their point of view the treatment is economical.

Conclusion.

In conclusion, it must be stressed again that the psychotherapy outlined is superficial and often directive, but the method was evolved to meet a definite problem—that of improving on orthodox treatment for certain groups of disorders—and within the limits of the stated aims it has been found to be effective in the majority of cases.

Summary.

Although physicians and their patients are becoming increasingly aware of the role of emotional factors in the causation of certain visceral diseases, these factors are frequently ignored in treatment and in teaching. One reason for this is that in descriptions of treatment for these disorders the psycho-therapeutic techniques usually are suitable for use only by trained psychiatrists.

As most of these disorders are regarded as being medical, it would be desirable if treatment could be given by a physician alone, using a combined form of therapy.

Such a method is described and discussed as a reasonable compromise in the circumstances as they exist here at present. It is directed towards relieving symptoms and preventing their recurrence, rather than towards the manipulation of unconscious material. In it the psychotherapy is based on orthodox non-directive techniques, but it is reasonably short, as a knowledge of the usual emotional patterns associated with a psychosomatic illness permits certain short cuts to be made.

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A SIMPLE METHOD OF SWEAT COLLECTION WITH ANALYSIS OF ELECTROLYTES IN PATIENTS WITH FIBROCYSTIC DISEASE OF THE PANCREAS, AND THEIR FAMILIES.¹

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SINCE fibrocystic disease of the pancreas has been recognized as a clinical entity distinct from coeliac disease, knowledge of the underlying pathology has slowly progressed. The conception of the etiology of the condition has undergone several changes, and with each change another name has been given to the disease. The most recent conception of the disease is as one of inherited origin, characterized by generalized disorder of function of exocrine secretory glands, or of the cholinergic glandular systems. The result of this secretory dysfunction, as so far determined, is an alteration in the viscosity of mucus secreted in the body, but particularly in the bronchial and alimentary tracts and biliary system, and an alteration in electrolyte composition of sweat and saliva.

Darling *et alii* (1953) were first to demonstrate the elevated concentration of sodium and chloride in the sweat of patients, following observations by their colleagues, Kessler and Anderson (1952), that these children were particularly liable to heat exhaustion during the New York summers. These findings were confirmed by Schwachman *et alii* (1955), and since then, among others, by Barbero *et alii* (1956), Kaiser *et alii* (1956) and Webb *et alii* (1957). All used heat as the stimulus to sweating, and the sweat was usually collected from a portion of, or from the whole body, after the child has been warmed up in a plastic bag.

Di Sant'Agnese *et alii* (1956) have reported high levels of sodium and chloride in the sweat of some of the parents and siblings of patients with fibrocystic disease of the pancreas. Maurer and West (1956) report elevated levels in one mother, but no other evidence of changes in the sweat electrolytes of parents or "normal" siblings has as yet been produced.

The purpose of this paper is primarily to describe a method which has been found simple and satisfactory for the collection of sweat, and for the determination of sodium and chloride in the sweat. The method has been used to assess the value of the determination of sweat electrolytes in the diagnosis of fibrocystic disease of the pancreas, and to see if the parents or siblings of these patients show this abnormality. Estimations of sodium and chloride in the saliva of a group of patients and other children have also been made, to assess likewise the value of these as a means of diagnosis.

Methods and Materials.

Schwartz and Thaysen (1956), investigating the physiology of sweating, described a method by which a localized flow of sweat was induced by injecting a cholinergic drug into a small area of skin. This method was adapted to our purpose and while this work has been in progress, Maurer and West (1956) have published results, having used a very similar procedure.

Sweat was collected from the ventral surface of the forearm after the intradermal injection of two milligrammes of "Mecholyl"

hydrochloride. After the injection, the site and surrounding area were well washed with ether and distilled water and dried thoroughly, care being taken that there was no leakage from the injection site. The area was then covered with a gauze pad measuring three inches by three inches (Johnson and Johnson), and with a square of plastic taped to the arm by adhesive plaster.

Before use, the pads were well washed in glass-distilled water to remove traces of electrolytes, and dried in the oven. They were weighed on an analytical balance in glass-stoppered 50 millilitre flasks before and after sweat collection. The gauze was carefully handled with forceps, and the flasks were not touched by unprotected hands. Quantities of sweat over 100 milligrammes were suitable for estimation. Usually about 100 to 300 milligrammes of sweat were obtained after the gauze covered with a bandage had been left on the arm for one hour. At the end of the collection period, the pad was removed with forceps and returned to the flask. Twenty millilitres of glass-distilled water were added to the flask, which was then shaken at intervals for one hour. Sodium and potassium concentrations were determined using an E.E.L. flame photometer. Chloride was measured by the method of Schales and Schales (1941), using titration with standard mercuric nitrate.

Sweat was obtained from the following groups of individuals:

1. Forty-four patients with fibrocystic disease of the pancreas, with an age range from several days to 15 years. Forty of these children had proven pancreatic achylia with viscid duodenal fluid. Three showed reduction of pancreatic enzymes with viscid duodenal fluid, and came from families in which another child had died of the disease. One baby who had suffered from meconium ileus showed post-mortem characteristics of the disease. The majority had intermittent or continuous suppurative chest infection, but in six cases chest infection was minimal.
 2. Controls; a series of 30 children convalescent from a variety of conditions, excluding chronic chest disease and gastrointestinal disease, and with a similar age range to the children of group 1.
 3. "Normal" siblings; a series of 21 siblings of the patients suffering from fibrocystic disease of the pancreas.
 4. "Normal" adults; a series of 20 normal, young and middle-aged adults, 10 male and 10 female.
 5. Parents; a group of 42 parents of the children suffering from fibrocystic disease of the pancreas, including 20 fathers and 22 mothers of 22 families.
- As well as these five main groups, other smaller groups were studied.
6. Five patients with true gluten-induced coeliac disease.
 7. Fifteen children with chronic lung suppuration, but normal pancreatic function.
 8. Sweat obtained by heat stimulus in a small group of controls and patients suffering from fibrocystic disease of the pancreas. This was compared with sweat obtained by the "Mecholyl" stimulus method.

Results.

The concentrations of sodium and chloride in the sweat of the subjects in groups 1 to 7 are shown in Table I. These results are also compared graphically in Figures I, II and III.

An analysis of the results shows that the average values for sodium and chloride in fibrocystic disease of the pancreas are approximately three times as great as the levels in "normal" children and in the siblings of the patients. The siblings and the normal children give an almost identical range of results, so that these may be legitimately grouped together as normal results. The average values and the range of values for "normal" adults are somewhat higher than the range for normal children. However, the values for parents of fibrocystic patients are almost identical with those of the normal adults, and no parents could be considered abnormal.

Results obtained in other diseases which produce either chest infection or steatorrhoea, such as coeliac disease and suppurative bronchiectasis, reveal average values and ranges which are very similar to those of the "normal" children. Therefore, from all these results, a composite group of 71 children not suffering from fibrocystic disease of the pancreas can be collected, and their sweat electrolytes compared with those found in patients suffering from the disease (Table II). In none of the 71 cases

¹Based on a paper read at the meeting of the Australian Paediatric Association, Canberra, April, 1957.

was the value for sodium or chloride above 70 milliequivalents per litre. The vast majority of patients with the disease showed levels above 80 milliequivalents per litre. However, seven patients (Figure 1) showed sodium values below 70 milliequivalents per litre. In four of these seven, the chloride levels were high. Only three "fibrocystics" had chloride values below 70 milliequivalents per litre. These three patients will be referred to in more detail later.

Table III shows results from "normal" children and "fibrocystics" comparing values obtained by heat and "Mecholyl" stimulus methods. Sweat obtained by the heat method was collected from the back, and sweat obtained by the "Mecholyl" method from the forearm. "Mecholyl"-induced sweat gives slightly higher values in both series.

TABLE I.
Forearm Sweat ("Mecholyl" Stimulus).¹

Type of Subject.	Sodium. (Milliequivalents per Litre.)		Chloride. (Milliequivalents per Litre.)	
	Average.	Range.	Average.	Range.
Fibrocystics (44)	95	25-176	118	27-186
Control children (20)	34	9-39	37	11-66
Siblings of fibrocystics (21)	34	15-63	40	16-84
"Normal" adults (20)	56	27-87	52	19-82
Parents of fibrocystics (42)	58	11-98	54	10-84
Cottages (5)	25	15-35	31	14-52
Subjects with chronic chest disease (15)	28	6-53	32	9-56

¹ Sodium and chloride concentration in the sweat collected from a patch on the forearm after the intradermal injection of two milligrammes of "Mecholyl".

Ten fibrocystic patients, 10 controls and 10 patients with bronchiectasis were tested. Patients suffering from bronchiectasis were chosen because they were readily available, and they showed a symptom which was in some ways similar to one side of the disease pattern of fibrocystic disease of the pancreas. The results are set out in Table IV, and from it can be seen that the average figures for sodium and chloride in the fibrocystic series are higher than in the normal controls, but there is considerable overlap in the range figures. However, figures for the bronchiectasis series with normal pancreatic function, show a chloride average value as high as that for the fibrocystic series, and higher sodium average value.

Saliva collected in this way did not, therefore, show a significant elevation of sodium or chloride concentration in patients with fibrocystic disease of the pancreas, compared with other children.

Discussion.

In the majority of cases, fibrocystic disease of the pancreas can be recognized from a careful clinical history and examination, with the help of a cough swab culture, X-ray examination of the chest and microscopic examination of the faeces. However, confirmation is desirable, because of the prolonged nature of the treatment and the question of prognosis. Differentiation from recurrent chest infection of other types may also be necessary. From the present study and the work of others, the "sweat test" is at present considered to be the simplest and most reliable test for this purpose. It causes the patient much less discomfort than duodenal intubation—the other confirmatory test which, like the "sweat test", is aimed at demonstrating in a direct fashion one of the basic pathological lesions of the disease.

Stimulation of sweating by the use of "Mecholyl" was found more satisfactory than the use of heat. No side effects, apart

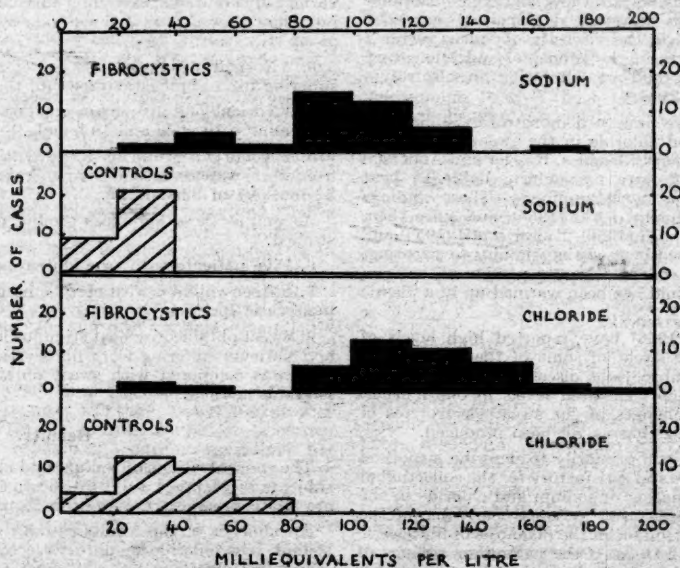


FIGURE 1.
Comparison of sodium and chloride levels in sweat of fibrocystic children with those of other children. Sweating induced by "Mecholyl".

Examination of Saliva.

As saliva is a variable fluid, collection for electrolyte determinations was made under standard conditions. Two hours after a meal the patient was given a pellet of paraffin wax to chew in order to stimulate a flow of saliva, which was collected into a test tube by expectoration. The saliva collected in the first five minutes was discarded because it contained cellular material. The saliva produced in the next 10 minutes was used for the test. After centrifugation of the saliva, sodium and chloride were estimated in the supernatant fluid, by the use of the same method as for sweat electrolytes.

from transitory flushing of the face, were observed from the use of "Mecholyl". The patient could be ambulant during the test, and it was used on an out-patient basis. However, meticulous care in the technique of the test was necessary, owing to the small quantities involved. During our preliminary studies, heat was used as a stimulus to sweating, and similar results were obtained, but the method was discarded for several reasons. The use of heat on babies and children, and personally experienced by one of us, showed that heating in a plastic bag was an extremely uncomfortable procedure, and sometimes detrimental to a sick child. These children at times show symptoms and signs of salt depletion, especially in warmer

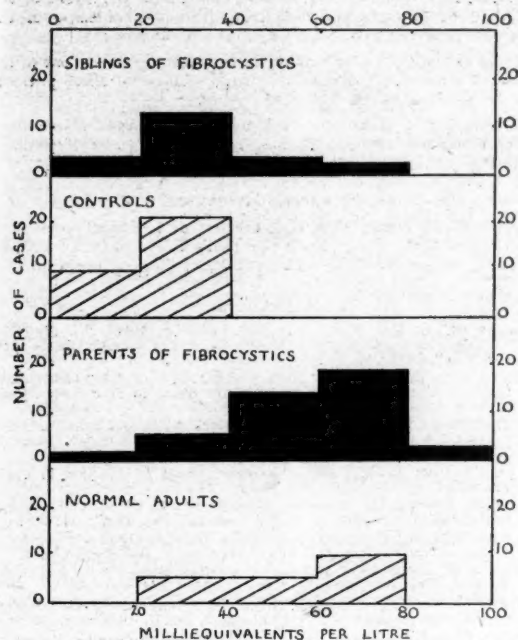


FIGURE II.

Comparison of sodium levels in sweat of parents and siblings of fibrocystic children with control groups of a similar age range.

countries. We have observed that some ill babies may improve clinically, with sudden increases in weight, when salt is added to their feedings, although the initial signs of depletion were not

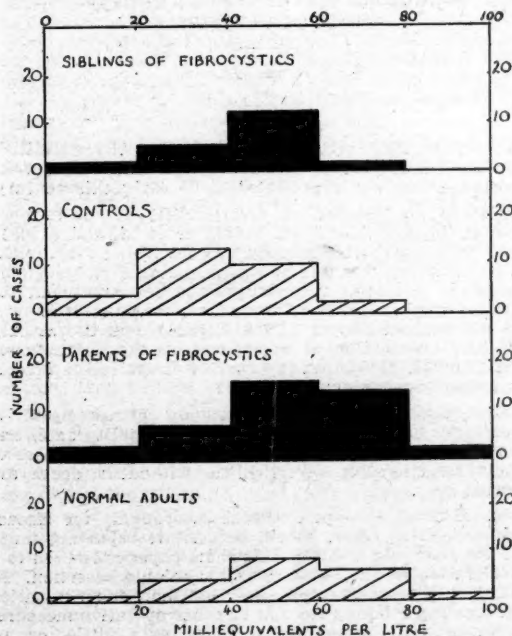


FIGURE III.

Comparison of chloride levels in sweat of parents and siblings of fibrocystic children with control groups of a similar age range.

obvious. Therefore, it seemed unwise to subject these children to a period of one to two hours' generalized sweating, when a reliable result could be obtained from a small patch on the arm. The collection of sweat by the use of heat also necessitated at least temporary hospitalization, or the availability of a bed and a bath.

TABLE II.
Forearm Sweat Electrolytes in Children ("Mecholyl" Stimulus).¹

Type of Subject.	Sodium. (Milliequivalents per Litre): Average.	Chloride. (Milliequivalents per Litre): Average.
Fibrocystics (44) ..	95 (7 below 70).	118 (3 below 70).
All subjects not fibro- cystics (71) ..	28 (none above 68).	35 (none above 66).

¹ Sodium and chloride concentration in sweat of patients with fibrocystic disease of the pancreas, compared with that from all other children tested who did not have fibrocystic disease.

Results of the investigations described confirmed those of others, that the sweat of the majority of patients suffering from fibrocystic disease of the pancreas showed a threefold to fourfold increase in concentration of sodium and chloride. In this series of cases, the chloride value was found to be more constantly

TABLE III.
Sweat Electrolytes.¹

Type of Subject.	Number of Subjects.	Sodium. (Milliequivalents per Litre.)		Chloride. (Milliequivalents per Litre.)	
		Average.	Range.	Average.	Range.
Patients with fibro- cystic disease of pancreas (heat)	7	83	50-103	90	69-120
Patients with fibro- cystic disease of pancreas ("Mecholyl")	44	95	25-176	118	27-186
Control children (heat) ..	8	19	10-42	17	8-28
Control children ("Mecholyl")	30	26	9-39	37	11-66

¹ Comparison of concentration of sodium and chloride in sweat collected after heat and "Mecholyl" stimuli in patients with fibrocystic disease of the pancreas, and in other children.

elevated than that of the sodium, but there were three patients in a series of 43 with both sodium and chloride values that fell within the normal ranges. The normal range is rather a wide one, but no values above 70 milliequivalents per litre were found, and these values were taken as the upper limit of normal.

TABLE IV.
Salivary Electrolytes.¹

Diagnosis.	Sodium. (Milliequivalents per Litre.)		Chloride. (Milliequivalents per Litre.)	
	Average of Ten Patients.	Range.	Average of Ten Patients.	Range.
Fibrocystic disease of the pancreas ..	15.0	5.6-40.0	19.3	16.9-27.3
Bronchiectasis ..	30.7	18.4-52.8	19.7	9.9-32.5
Other conditions ..	10.0	4.0-19.5	14.5	9.1-20.4

¹ Comparison of sodium and chloride concentration of saliva in patients with fibrocystic disease of the pancreas, bronchiectasis and other conditions (10 patients in each group).

In other diseases producing symptoms similar to some of the symptoms of fibrocystic disease of the pancreas, the sweat electrolyte levels were normal.

The three patients who showed normal levels in the fibrocystic series are worthy of further comment. Two of these were females aged nine years at the time of testing, and had been diagnosed as

suffering from fibrocystic disease of the pancreas, one seven years previously and the other four years. The diagnoses had been based on their physical failure to thrive, on the passage of large, offensive fatty stools, steatorrhea shown by fat-balance studies, and on the absence of pancreatic enzymes in the duodenal fluid. Neither child had ever developed persistent suppurative chest infection, but only intermittent bronchitis clearing readily with the exhibition of a normal course of antibiotics. The findings on X-ray examinations of the chest were considered within normal limits, between attacks of bronchitis. One child developed classical symptoms of *diabetes mellitus* at the age of seven years, and was the only patient we have studied in whom this has occurred. In these two patients, although the diagnosis of pancreatic achylia was undisputed, the presence of some other lesion of the pancreas responsible for this condition had not been excluded. The third patient with normal levels showed all the pulmonary and digestive symptoms associated with fibrocystic disease of the pancreas. Schwachman, in a personal communication, reports that 98% of his series of 300 patients showed abnormal values; and di Sant'Agnes (1957), 90% of 140 children. It seems, therefore, that an occasional child suffering from this disease will not show the sweat abnormality. However, some children show only partial pancreatic deficiency, and others very minor chest involvement, and therefore all features of the disease are not entirely constant.

This work does not demonstrate any abnormalities in the sweat of the parents or normal siblings. However, the range of normal values for adults would appear to be appreciably wider than the range of values for children, and the figure of 70 milliequivalents per litre could not be used as the upper limit of normal. The control group of adults was not large enough to allow a definite normal range to be stated, but no higher results were obtained in any of the parents than in the normals. It is thought that the difference in the adult and child range may account for some of the abnormal results reported by di Sant'Agnes *et alii* (1953). They tested 60 individuals from 18 families, and found 14 individuals with high levels. Four families accounted for 10 of these individuals, while the other families showed no abnormalities. However, they do not list the values which were considered abnormal, except in one family tree, in which the patient's father showed values which would come within the normal adult range in our series. Maurer and West (1956) reported one mother with a chloride value of 163 milliequivalents per litre. This was certainly abnormal, but there was no record of the value being checked. It is noted that, in the description of their technique of the test, the pads were not pre-washed to make them free of electrolytes, and were at one stage handled by bare hands. Gauze pads tested by us were found to contain small amounts of electrolytes.

It is not thought that sufficient evidence has been produced to support the statements of di Sant'Agnes (1953) that a proportion of relatives of known patients have the elevation of sweat electrolytes characteristic of children suffering from the disease, and also not sufficient evidence to alter, on these grounds, the concept of the type of genetic inheritance in this disease (di Sant'Agnes, 1957).

A number of workers, including Kaiser *et alii* (1956), McGrady and Bessman (1955) and di Sant'Agnes (1957), have studied the salivary electrolytes in fibrocystic disease of the pancreas, partly to find a simpler test than that involving sweat collection. However, results have been inconclusive. McGrady and Bessman found that the chloride concentration varied markedly with the method of collection, and consistent results were obtained only with the parotid secretion. They found a raised concentration in a small group of five fibrocystic patients compared with others, but collection of pure parotid secretion was not easy. Kaiser *et alii* reported increased levels, but di Sant'Agnes found that the increase was not always significant.

Our results with mixed saliva collected by a constant technique do not indicate that the electrolyte content is significantly raised in patients suffering from fibrocystic disease of the pancreas; in fact, patients with chronic chest disease showed levels as high as the fibrocystic group. The range of values in each group tested was wide, and showed considerable overlap.

Summary.

1. A method for the collection of sweat from the forearm after the injection of "Meeholyl" intradermally, is described.
2. Levels of sodium and chloride in the sweat of "normal" children and adults have been determined by this method.

3. The high levels of sodium and chloride in the sweat of the majority of patients suffering from fibrocystic disease of the pancreas reported by others, have been confirmed.

4. No evidence of abnormality in the electrolyte content of the sweat of a series of parents or normal siblings of these patients can be demonstrated.

5. The levels of sodium and chloride in mixed saliva vary widely, and are not significantly raised in a series of patients suffering from fibrocystic disease of the pancreas.

Acknowledgements.

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EARLIER COLONIC RESECTION FOR DIVERTICULITIS.¹

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COLONIC DIVERTICULITIS, or more simply "diverticulitis", is by no means rare in ambulatory patients and yet its importance was not appreciated until early this century.

There is no mention of diverticulitis at all in such books as those of Allingham (1888) or of Bidwell (1905); but by 1923, Lockhart-Mummery was describing this disease and its complications, and he was recommending colostomy followed by a colonic resection as the best treatment for advanced cases. However, it was realized that this was then not without danger (Rankin, 1926), and it was only with the introduction of operations on the defunctioned colon (Devine, 1935) that the cure of diverticulitis became a practical proposition.

Since those days other methods of pre-operative preparation have greatly lowered the mortality rate, and a consecutive series of 27 of my own and 12 other cases of colonic resection for diverticulitis without a death are reported here.

Instead of an attempt to discuss thoroughly the disease of diverticulitis, which would necessitate repeating much that has been said so often, this short paper is limited to a consideration of the indications for colonic resection. At the outset, it must be emphasized that there is no intention of advocating colonic resection or other operative measures for those very numerous patients with little or no disability. It is believed, however, that there are a signifi-

¹ Read at a meeting of the Old Sydney Hospitalers' Club, Sydney, September, 1957.

cant number of patients suffering from diverticulitis who are not, but who should be, offered the choice between (1) a colonic resection and (2) carrying on in their present invalidism with the probability of developing complications later. It is with this group, albeit a very small group, of patients that we are now concerned here.

Diverticulitis does not often cause sudden symptoms in a patient who has previously been symptom-free. Rather, the onset of the disease is slow and insidious, and for many months or years these patients suffer in the care of the physicians. During the early stages of the disease, that is, until the infected diverticula are no longer retractable, medical treatment with dieting, colonic lavage, retention enemata, paraffin, chemotherapy, etc. will not cure the disease, but will provide some relief. However, sooner or later the symptoms recur and increase in severity and, in the later stages of the disease, when there are non-retractable inflamed diverticula and the condition deserves its name of "left sided appendicitis", medical treatment is of much less value.

Confirmation of the diagnosis of diverticulitis depends on radiology and not on sigmoidoscopy. The latter may suggest the correct diagnosis, but the openings of the diverticula are very rarely seen through the sigmoidoscope. Not one opening was visible in my series of a few thousand sigmoidoscopic examinations, but after resection of an involved segment of bowel these openings are often readily visible. Presumably, this difference in appearance is due to spasm of the intestinal muscles which, *in vivo*, constricts the wide mouths of the diverticula so that stasis and infection are just as likely to occur as in a vermiform appendix.

Medical treatment of appendicitis has been outmoded for the last 40 years; but, even now, some patients with uncomplicated diverticulitis are being refused surgical relief, although they have reached the stage when non-retractable diverticula are persistently inflamed and when it is quite likely that complications will soon develop.

In the past the only indications for bowel resection in diverticulitis were the development of intestinal narrowing, fistula formation (internal or external), perforation, pericolic abscess, or the suspicion that a colonic carcinoma had arisen. Whereas, not unnaturally, the patients regarded any of these happenings as just another manifestation of their particular bad luck, it meant that they were passed to the surgeon, who would usually, without "mighty magic", eradicate the whole disease whilst dealing with the complication. Thus, there would at long last be a happy ending to the story.

Previous figures (Wilson, 1954), and those of the present paper, show that the mortality rate of colonic resection for diverticulitis can be kept very low. This being so, and because patients with diverticulitis and much disability from pain, fever, or irregularity of the bowels will, at the best, be given only temporary relief by medical treatment, colonic resection and its corollary of permanent cure should be discussed with them.

Accordingly, if the general condition has not greatly deteriorated, and if the patient considers his disabilities are sufficient to justify a major operation and is happy to accept the risk, the expense, and the inconvenience this entails, then without doubt it should be performed.

While there is no evidence that diverticulitis is a factor in the development of a carcinoma of the colon, the two conditions may occur together; and, in every case of diverticulitis in which there is even only a slight change in symptoms, the possibility of the appearance of a carcinoma of the colon must be considered. Until the bowel is removed, it is often not possible to decide whether a carcinoma of the colon coexists with diverticulitis, and this is especially so in the exceptional case in which an inflammatory mass in or around the sigmoid colon or recto-sigmoid region is palpable *per rectum*.

Once the signs and symptoms of irritation of the bladder appear in a patient suffering from diverticulitis, they should be taken as a warning that a vesico-colic fistula is likely to develop, and consideration should be given to

resection of the involved portion of the colon before this "pneumaturgia" stage has a chance to progress (Wilson, 1955).

Diverticulitis is often associated with obesity. So also is *diabetes mellitus*, and some patients suffer the misfortune of having both diverticulitis and diabetes together. Colonic resection and eradication of the septic foci will then, as in all diabetics with infections, facilitate the control of the diabetes, and, in the presence of diabetes of any severity, extra consideration should be given to the question of a colonic resection.

In 1936 W. E. Tanner wrote: "Never do a primary resection and anastomosis (for diverticulitis) or your patient will die from peritonitis." Since then, the introduction of the insoluble sulphonamides and the antibiotics has made primary resection and anastomosis the treatment of choice, and the risk of peritonitis is now very small indeed in uncomplicated cases. On the other hand, in patients with intestinal obstruction, perforation, abscess formation or gross adhesions, a Paul-Mikulicz type of resection or a defunctioning colostomy (but not a caecostomy) is to be preferred as the first stage in their management.

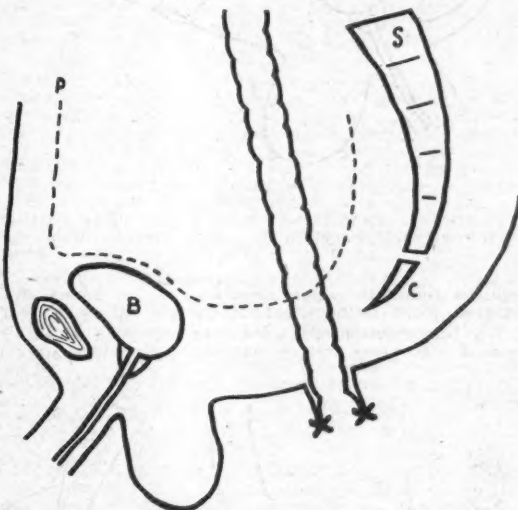


FIGURE 1.

Diagram to show the prolapsed bowel and anastomosis prior to its reduction. (After the method of Maunsell.)

No matter how long the bowel is defunctioned without removal of the affected portion, the inflammatory process is practically certain to flare up again when the colostomy is closed. This applies especially to the use of a temporary colostomy as the sole method of treatment of a vesico-colic fistula, incipient or established. Also, it has been pointed out by Lloyd-Davies (1953) that closure of a colostomy, without resection of that portion of the colon involved by the diverticulitis, carries the risk of subsequent perforation of the diseased loop or of intestinal obstruction.

Short-circuiting procedures alone are also no longer used in diverticulitis as they are even less likely than a temporary colostomy to be followed by permanent quiescence of the inflammation.

In all severe cases of diverticulitis in which the anaesthetic risk is favourable, the goal should be the complete eradication of the disease and restoration of continuity of the alimentary tract.

In those cases in which a sutured anastomosis of the colon is contemplated, it must be stressed that the five widely accepted criteria of (1) good blood supply, (2) no tension on the anastomosis, (3) adequate preparation of the bowel, (4) no inflammation at the sites of division

and (v) no distension of the bowel above the lesion, apply especially to resections in the presence of diverticulitis.

In diverticulitis there is usually some shortening of the colon, and mobilization of the splenic flexure is more often

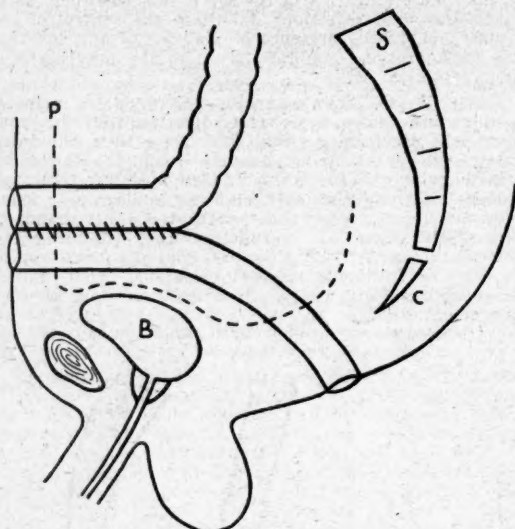


FIGURE II.

Diagram to show the extended Paul-Mikulicz type of operation with mobilization of the rectum from the sacrum.

required than with colonic resections for carcinoma. When required, mobilization should be carried out as the initial step in the resection. An abscess in juxtaposition with the sigmoid colon may not be immediately obvious after the

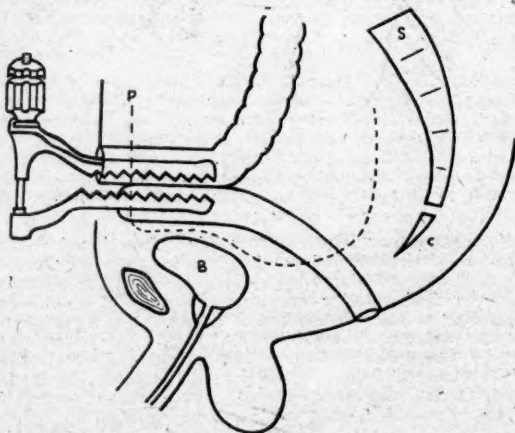


FIGURE III.

Diagram to show the extended Paul-Mikulicz type of operation, in which the mobilized lower loop of bowel has been closed around the blade of an enterotome.

abdomen is opened, and it is better that all upper abdominal manipulations are completed before the peritoneum of the left iliac fossa is contaminated.

If it is necessary to extend the limits of the resection to the recto-sigmoid region to ensure that all the affected bowel is removed, continuity may be restored by an anterior resection with anastomosis in the depths of the

pelvis similar to that used for the treatment of some carcinomata of the rectum (Dixon, 1948), or by a pull-through procedure with construction of the anastomosis outside the anus and then reduction of the prolapsed bowel (Figure 1). This procedure was described by Maunsell (1892) for the treatment of carcinoma of the rectum and it is now used for the treatment of Hirschsprung's disease.

If there is some contraindication to a sutured anastomosis, and the inflammation reaches to the recto-sigmoid region, the Paul-Mikulicz type of resection may be extended by mobilizing the rectum from the sacrum and passing it straight up to the abdominal wall, (Figure II). If the lower piece of bowel still lacks sufficient length to reach the surface of the abdominal wall, the difficulty may be overcome by fixing the top of the rectum to the upper limb of the sigmoid colon, inserting a light enterotome (Wilson, 1951) and closing the top of the rectum around the enterotome (Figure III). The parietal peritoneum is then sutured to the top of the rectum and, subsequently, the spur crushed and the colostomy closed.

Results.

A consecutive series of 27 of my own patients with diverticulitis were submitted to a colonic resection in the eight years up to the end of 1956. During the same period 12 other patients with diverticulitis were similarly treated at Sydney Hospital. (Nine of my patients were at Sydney Hospital and the remainder were at St. George Hospital and in private practice.) In these two groups of 27 and 12 patients (making 39 in all) there was no death following the operations. A similar absence of mortality in cases of colonic resection for diverticulitis is reported in the 1956 annual report of St. Mark's Hospital, London.

Firstly, the signs, symptoms and treatment of all patients with diverticulitis admitted to Sydney Hospital in the three-year period 1954-1956 are reviewed (Tables I and II), and this is followed by a review of the treatment in my own cases (Table III).

TABLE I.

Patients with Diverticulitis Admitted to Sydney Hospital.

Year.	Admissions.	Resections.	Average Age.
1948 to 1953 ..	47 (9.4 per annum)	15	60.8
1954 to 1956 ..	37 (12.3 per annum)	6	64.0

In the years 1954-1956 a total of 37 patients (18 male and 19 female) suffering from all forms of diverticulitis were admitted to Sydney Hospital, and in these persons the major symptoms were: pain in the left iliac fossa in 21, looseness of the bowels or diarrhoea in 12, blood in the motions in 11, constipation in seven, excess of mucus in the motions in four, abdominal distension in three, loss of weight in two, fever and sweating in one, and pneumaturia in one.

Most of the patients showed some tenderness in the left iliac fossa, but in four it was associated with guarding of the muscles. In five patients a mass was palpable in the left iliac fossa, and in two a mass was palpable *per rectum*. A slight leucocytosis was the rule, but in one case in which there was no other indication of an abscess the leucocyte count was 33,600 per cubic millimetre. One of these 37 patients died in hospital—a man, aged 70 years, who was admitted to hospital 30 hours after perforation of a diverticulum in the recto-sigmoid region. Despite drainage, resuscitation and chemotherapy, death occurred two days later. In eight of the 37 cases an extensive operation was precluded because of the presence of at least one of the following: congestive cardiac failure, coronary insufficiency, auricular fibrillation, severe hypertension, aortic aneurysm, cerebral arteriosclerosis, lobar pneumonia or chronic glaucoma. In at least four other cases a colonic resection appears to have been indicated, but it was not carried out. One patient was in the hands of the physician, and operation does not appear to have been advised despite

attacks of diarrhoea and tenesmus and the radiologist's report of "partial obstruction due to a lesion of the upper sigmoid colon. The nature of this lesion is not apparent". In two patients operation was also not advised, although their symptoms had been very severe and the general

intestinal obstruction freed them from their bondage by permitting no further delay in surgical treatment. In none of these 27 cases has there been any recurrence of the disease following the colonic resection.

During the same eight years, the number of patients with diverticulitis seen by me, either in private practice or in out-patient departments, and from whom these 12 were chosen, must have been well over 200. Thus, the earlier use of colonic resection in diverticulitis has been reserved for a small, but special, group of patients; and it must be repeated that there is no intention of advocating colonic resection for the large majority of patients in whom there is little or no real disability.

As the final result in all the 12 cases was similar, only one will be described in detail.

Report of a Case.

Mr. A. had an operation for diverticulitis during 1934, but the details of this were unknown. For the next 11 years he was free of symptoms, but at intervals from 1945 onwards he suffered from frequent attacks of diarrhoea and severe pains in the left iliac fossa. On June 2, 1956 he was admitted to Sydney Hospital. The abdominal pain and diarrhoea had been increasing for three months and in that time had become very troublesome. He was also complaining of the passage *per rectum* of excess mucus, but without any bleeding. There was no recent loss of weight, no pyrexia and no dysuria.

Despite a chronological age of 76 years, his general condition was very good, and on June 5 an anterior resection of the sigmoid colon and of the upper part of the rectum was performed with an end-to-end anastomosis. The affected portions of the bowel appeared to be only the lower part of the sigmoid colon and the recto-sigmoid region. The pathologist (Dr. A. Palmer) reported that the specimen consisted of 30 centimetres of large bowel and contained numerous diverticula. Microscopic examination showed mild chronic inflammation in and around the diverticula and in the mesenteric lymph nodes.

The patient was discharged home on August 1. His only complaint was then of some looseness of the bowels, but this settled down within the following month. When he was shown at a British Medical Association meeting at Sydney Hospital some 12 months later, he was completely free of symptoms and was very pleased with the results of the operation. He said that he was extremely sorry it had not been performed earlier, for he now felt better than at any time since 1945.

Summary.

A review of a consecutive series of 27 of my own cases and 12 other cases of colonic resections for diverticulitis shows that all these patients were discharged from hospital apparently cured of the disease. In other words, the risks of colonic resection for diverticulitis can be kept very small indeed; and it may be concluded that colonic resection should not be withheld in cases of diverticulitis purely because of the supposed danger of the operation.

For many years various complications were the only recognized indications for colonic resection in diverticulitis, but it is concluded that now, even in the absence of any of these complications, a resection should be considered when there is (i) much disability despite medical treatment, or (ii) an incipient vesico-colic fistula, or (iii) involvement of the female pelvic viscera or (iv) a recent change in symptoms.

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TABLE II.
Analysis of Cases of Diverticulitis, Sydney Hospital, 1954 to 1956.

Classification.	Number of Cases.
Mild to fairly severe symptoms, resection not clearly indicated	17
Resection precluded because of associated diseases	8
Bowel resections	6
Resection indicated but not advised	4
Resection advised but declined by patient	1
Death following perforation	1
Total	37

condition in each was not impaired. The fourth patient showed quite a noticeable recent change in symptoms. After a history of vague pains in the left iliac fossa for some years, he had complained of a great increase in the pain, and of nausea, loss of weight, and irregularity of the bowels for not more than three months. After an X-ray examination with a barium enema and sigmoidoscopic

TABLE III.
Bowel Resection for Diverticulitis.

Type of Operation.	Number of Cases. ^{1, 2}
Resection and sutured anastomosis:	
A. One-stage:	
(a) Left hemicolectomy	3
(b) Recto-sigmoidectomy	6
(c) Sigmoid colectomy	4
(d) Recto-sigmoidectomy and closure of a vesico-colic fistula	1
B. With colostomy:	
(a) Left hemicolectomy	3
(b) Recto-sigmoidectomy	1
(c) Recto-sigmoidectomy and closure of a vesico-colic fistula	3
Extended Paul-Mikulicz excision	5
Resection and terminal colostomy, sigmoid colon and rectum	1
Total	27

¹ My own patients treated at Sydney Hospital, St. George Hospital and privately.

² During the same period there were many cases of carcinoma of the rectum or of the colon associated with diverticulitis, in which the latter was only an incidental finding. Such cases are not considered in this paper.

examination had failed to show any sign of neoplasm, operation does not appear to have even been considered.

Of the 17 patients in this series in whom the symptoms were less severe, one wonders to how many the opportunity of being cured by a colonic resection would have appealed, if operation had been discussed with them.

During the past eight years my own series of 27 cases of colonic resection for diverticulitis (Table III) included eight in which the operation was required because of intestinal obstruction. There was a vesico-colic fistula in four, a palpable mass in the left iliac fossa in two and a mass palpable *per rectum* in one. In the remaining 12 the colonic resection was performed because of incapacity due to pain, fever and diarrhoea, because of irritation of the bladder, or because of a sudden change in symptoms after a long-standing history of mild diverticulitis. There is no doubt that these 12 patients have been restored to health and are immeasurably better off than if they had struggled along till a perforation, abscess, fistula or

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Reviews.

An Introduction to Functional Anatomy. By David Sinclair, M.A. (Oxford), M.D. (St. Andrews); 1957. Oxford: Blackwell Scientific Publications, 8½" x 5½", pp. 428, with 166 illustrations. Price: 42s. (English).

THIS work by the newly-appointed professor of anatomy at the Perth Medical School is bound to arouse some interest. It is intended for medical auxiliaries and, more specifically, is based upon a course of instruction for occupational therapists. The book is in three sections, 209 pages being devoted to tissues and systems, 24 pages to the body as a whole and 155 pages to topographical anatomy. That is, it is an omnibus volume, meant to give an overall picture of systematic and regional anatomy, as well as physiology. The emphasis is decidedly on the motor mechanisms of the body, presumably because of the interests of those for whom it is designed, but the treatment is over-biased in that direction. For example, the nervous system and special senses occupy some 80 pages—about one-fifth of the total—of the first section of the book, and this contrasts strongly with the rather cursory attention paid to the other systems. About half of the small section on the body as a whole is concerned with posture and muscular activity, while that on topographical anatomy deals mainly with bones, joints, muscles and nerves.

The work probably meets the requirements of occupational therapists, but we are doubtful whether, by itself, it will satisfy all the anatomical and physiological needs of such medical auxiliaries as physiotherapists and radiographers, in Australia at least. The book is well produced and the illustrations, many of them borrowed, are simple and clear.

Sanitary Science Notes: A Handbook for Students. By H. Hill, F.R.S.H., F.A.P.H.I., A.M.I.P.H.E., and E. Dodsworth, F.R.S.H., M.A.P.H.I., M.Inst.P.C.; Third Edition; 1957. London: H. K. Lewis and Company, Limited. 6½" x 4", pp. 144. Price: 10s. 6d. (English).

THE arrangement and size make this book exactly what the author intended—an excellent reference book for the student and trained public health officer. The book can be accommodated with ease in the hip pocket when the officer is out on an inspection. Each point is discussed in detail for practical use, but the book is concisely and simply written. References may thus be found quickly and easily assimilated. There is also a wealth of useful, easily understood information for the layman in this little reference book. The book should therefore be of use and interest to the ordinary householder in Australia, where so many take a large part in the construction and maintenance of their homes. It must, however, be borne in mind that this book was primarily written for conditions existing in Great Britain. It is occasionally necessary to make slight adjustments to conform with regulations and conditions existing in the various States of Australia. Essentially, however, it remains a good reference book.

Functional Neuro-Anatomy: Including an Atlas of the Brain Stem. By A. R. Buchanan, M.D.; Third Edition; 1957. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10" x 7", pp. 364, with 273 illustrations. Price: 82s. 6d.

THE basic plan of this work, as in the second edition which was reviewed in these columns some years ago, is to treat each "system" within the central neuraxis as an anatomical entity, the whole being leavened with some physiological and pathological comments. Such treatment has both advantages and disadvantages. The main advantage seems to be the presentation of a complete functional unit in each case—although none is, of course, really independent of the others. Disadvantages include taking the student prematurely into complex and unknown regions, and the inevitably scrappy nature of the physiological and pathological addenda. Nor do these latter always command the respect of a critical

reviewer. The current edition is said to have been completely revised; nevertheless, many defects—errors even—have survived. They need not be recounted here. The revision had added some 40 pages to the text, and includes consideration of the reticular formation and of subcortical and cortico-subcortical circuits. Some of the illustrations have been improved by reproduction at a larger size, which reduces the risk of confusion previously noted.

This is a fair representative of this class of book, without any notable advantages over others of the same type, and the price is high.

Slit Lamp Gonioscopy. By George Gorin, M.D., and Adolph Posner, M.D.; 1957. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6", pp. 200, with 67 illustrations. Price: 77s.

A NEW text-book produced by Posner and Gorin fills a definite need, giving as it does a lucid account of gonioscopic methods and technique. The whole basis of glaucoma classification and treatment, in the United States of America at least, depends on the state of the angle of the anterior chamber, and consequently gonioscopy must be a routine procedure if glaucoma patients are to receive the correct treatment. The technique of gonioscopy described in this book is the method in which the patient is sitting up and the slit lamp is used in conjunction with a Goldmann or other such lens. The method of gonioscopy in which the patient is recumbent is in many ways easier and permits of more accurate examination of the nasal and temporal angles. A chapter on this method of gonioscopy would have been most useful.

The authors describe the anatomy of the angle, the history of gonioscopy and then the technique of slit lamp gonioscopy. The gonioscopic findings in various types of glaucoma and in various conditions in which the angle may be affected are then described. Finally, there is a useful chapter on gonioscopy in routine daily practice.

This is an excellent text-book and deserves a place by the side of every ophthalmic surgeon who practises and who hopes to become proficient in slit lamp gonioscopy. Intelligent study of this text-book, coupled with practice in the techniques described, will make gonioscopy a relatively simple and speedy procedure.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Dental Practitioners' Formulary"; Third Edition; 1957. London: The Pharmaceutical Press. 6½" x 4", pp. 50. Price: 3s.

Designed for use in the National Health Service, this edition is similar to the previous editions, except that notes for prescribers on the control of pain and anxiety, on the control of infection and on nutrition and metabolism have been prepared. There is also a note on the prescribing of habit-forming drugs.

"The Lipids: Their Chemistry and Biochemistry", Volume III, by Harry J. Deuel, jr.; 1957. New York, London: Interscience Publishers, Inc. 9" x 5½", pp. 1102, with illustrations. Price: \$25.00.

This volume deals with biosynthesis, oxidation, metabolism and nutritional value.

"Management of the Handicapped Child: Diagnosis, Treatment and Rehabilitation", edited by H. Michal-Smith, Ph.D.; foreword by Arnold Gesell, M.D.; 1957. New York: Grune and Stratton. 8" x 5½", pp. 286. Price: \$6.50.

Prepared by 18 contributors for "the professional people who meet these children daily". It is an extension of an earlier collection entitled "Pediatric Problems in Clinical Practice".

"Studies on the Exo-Erythrocytic Cycle in the Genus *Plasmodium*", London School of Hygiene and Tropical Medicine, Memoir 12, by R. S. Bray, B.Sc., Ph.D.; 1957. London: H. K. Lewis and Co. Ltd. 9½" x 7", pp. 300, with 24 illustrations. Price: £2 2s. (English).

The author aims "to set out the knowledge of the subject as it stands today together with some new information which might never reach the interested reader".

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SATURDAY, MARCH 29, 1958.

THE HOBART CONGRESS.

THE waters of the Derwent flow sweetly and deeply by Hobart Town, and sweetly and deeply runs the stream of hospitality in the hearts of Hobart's people. This was most pleasantly evident to all who attended the Tenth Session of the Australasian Medical Congress (B.M.A.) held in Hobart from March 1 to 7, 1958, and the hospitality came not only from our medical colleagues but also from the Governor, the Bishop, the Lord Mayor and many another citizen. The weather, too, was kind, so that Hobart's natural beauty and man-devised attractions could be fully enjoyed.

Of the work of the Tasmanian Branch of the B.M.A., and especially of the local members of the Executive Committee of Congress, it is difficult to speak too highly. It was a formidable task for a small Branch to undertake, as the number of visitors inevitably far outweighed the number of local members; even for the larger Branches, who may expect the position in relation to numbers to be reversed, the organization of a Congress is no light matter. However, the task was done, and done well. All who shared in it, members of the Tasmanian Branch and their wives, under the leadership of the President of Congress, Mr. J. B. G. Muir, and the hardworking Honorary General Secretary, Dr. Franklin R. Fay, have earned the thanks and congratulations of the medical profession throughout Australia, and especially of the B.M.A.

The significance of these triennial scientific gatherings organized by the B.M.A. is great. Too often the Association is thought of as a medico-political body, as in many of its activities it is. Too seldom is it appreciated that it is a voluntary association of members of a scientific profession and that its first aim is the promotion of the medical and allied sciences. Even in the consideration of its second aim, the maintenance of the honour and interests of the medical profession, which necessarily involves medico-political activity, it may be said with sincerity that the Councils of the Association never lose sight of the responsibility of the profession to both the community and the individual patient. The maintenance of the honour and interests of the profession is necessarily bound up with the maintenance of a high standard of medical practice, both ethical and scientific. The stimulus of Congress, as of the many other scientific activities of the several Branches, is great in this regard, and must have been evident to all who saw the keen interest in the many

papers of particularly high standard presented at Hobart. Congress is one occasion also when the scientific activities of the Association come before the public. Close cooperation is maintained with the non-medical Press in the publication of Congress material likely to be of general interest. This occasionally issues in a *contretemps*, such as the extraordinary journalistic and bureaucratic activity which followed publication of a garbled version of F. W. A. Clements's contribution to a plenary session, when he discussed his well-known work on the goitrogenic substance apparently present in the milk of cows fed on certain species of *Brassica*; but in the main it is a very desirable form of public relations.

On the question of the organization of the scientific sections and meetings in a way likely to be most useful to members of Congress, much thought might well be expended. Many constructive suggestions have been made, and the matter is under consideration by the Federal Council. It is vital that Congress should be the effective scientific meeting ground of the whole profession—general practitioner, specialist, teacher, salaried officer, research worker, Services officer, administrator—and its organization should be bent towards that end. This is a good time for a general overhaul of the Congress machinery, as there will be an interval of four years before the next session, which is scheduled to be held in Adelaide in 1962. The extended interval is due to the fact that the Parent Body of the B.M.A. is holding its annual meeting in Auckland in 1961, in conjunction with the New Zealand Branch, and it is hoped that many members of the Association in Australia will cross the Tasman Sea for the occasion. Meantime we wish the South Australian Branch well in its preliminary preparations for the Eleventh Session of the Australasian Medical Congress (B.M.A.).

THE "YOUNGING" OF ELECTORATES.

LAST YEAR the Director of the Bureau of Medical Economic Research of the American Medical Association, Frank G. Dickinson, Ph.D., visited Australia. He was seeking information of a social, economic and political character, bearing on certain theories that he held relating to the influence of the age factor on the community. According to a recently published paper,¹ he seems to have found a good deal of what he sought, in addition to much food for thought.

Most people are aware in a vague way that a number of factors in the modern world, especially advances in medicine, have increased the number of older people in the community. Few, however, have considered the effect that this has on community thinking and especially on legislation. Dr. Dickinson's view is that the "aging of the electorates", which has resulted from the increased survival of older people, has produced political pressure for social legislation, particularly relating to the social security of the older part of the community, and so has hastened the trend towards the Welfare State. This has been the developing pattern since early in the present century. However, as Dr. Dickinson sees it, this aging trend will eventually reach a peak, as the responsible factors come to achieve their maximum effect, and will

¹ J.A.M.A., March 1, 1958.

then wane. The sequel will be what he has called the "younging" of the electorates. In his breezy style he puts it thus:

As the bumper crop of babies born since World War II matures into 21-year-old voters, the electorates of Western nations will start "younging". The proportion of older voters, which has risen rapidly in the 20th century, will reach a peak and then decline. The terrific pressure on political leaders to provide security for the rising tide of oldsters—and, perhaps, to advance other welfare state programs—will wane. The accent will again be on youth, as one of the great forces which produced the trend towards the welfare state goes into reverse gear.

When will this happen? Taking 50 years of age as the dividing line between the older and the younger voters, Dr. Dickinson produces figures to support statements of considerable interest and importance to this part of the world:

Australia will lead the parade of nations into the era of the younging electorate starting in 1961. New Zealand will be a close second. France will have third position in this parade with a very high, flat peak of 45% in 1965. The proportion of older voters in the United States will not hit its peak of 40% until 1970, but the decline thereafter will be quite rapid. If we do not look beyond 1978, the turning point (of at least 47%) for Great Britain is not in sight.

It must not be thought that Dr. Dickinson has produced these ideas as a result of gazing into a crystal bowl. This is very much his own line of country, and we may in any case be reassured by his affirmation that "prophecy is still an exclusively divine gift". It is interesting therefore to note what he found in Australia. He came here for several reasons. The first was because Australia and New Zealand would be the first nations to end this era of the aging electorate. With this went the fact (it apparently is a fact, relatively at least to the position in the United States) that most Australians vote at elections, so that the age distribution of those eligible to vote is reflected in the age distribution of the actual voters, and the second fact that the trend towards the Welfare State began earlier here and in New Zealand than in the United States. It was thus hoped, with caution, to find some advance clues to coming developments in the United States. In addition, Dr. Dickinson hoped to determine the social, economic and political changes that had resulted from an increasing proportion of older adults in our two countries. He interviewed a wide cross-section of the leaders in our community, but got his real help, he tells us, from the clergy and the outstanding political leaders. The account of his interviews and impressions is well worth reading, but the findings in general appear to be very much what his basic thesis would lead one to expect. On the question of the effect of the anticipated "younging" of the electorate, it is suggested that the corner will be turned very slowly—"a very smooth bend rather than a corner"—and some of those interviewed thought that the effect would be minimal. However, the general impression seems to have been that it would mean a move away from radicalism in politics, together with less stress on pensions and other special benefits for older voters, and Dr. Dickinson believes that it will "put a brake on the trend toward the welfare state and lessen the clamor for the guaranteed future, the riskless society". This surely is something of a breath of fresh air in the oppressively benevolent atmosphere that too often is regarded as normal in the modern State.

Current Comment.

RADIATION AND HUMAN HEREDITY.

MUCH has been written during the past few years on the possible effect of radiations on human heredity, not all of it based on real knowledge. Widely different views have been expressed on the possible effects of the increased exploitation of atomic and other forms of radiation. An important report on the subject has been issued by the World Health Organization. A WHO study group at a series of meetings obtained opinions of authorities on genetics from many countries and the opinions of experts on the lines of research which should be followed "to increase our understanding of the genetic effects of ionizing radiations on man". The papers presented at the meetings, which were held in Copenhagen in August, 1956, have recently been published under the title "Effect of Radiation on Human Heredity" (this was reviewed in the issue of March 8, 1958). A fairly full summary of the papers was published separately,¹ and reference to certain main points may be of general interest.

The sources from which man is likely to be irradiated can be classified broadly into two groups: the natural sources (cosmic rays, radiation from radioactive elements in the earth's crust and in the human body itself); the artificial sources, to which man has been exposed for about half a century (X-ray apparatus for diagnosis, therapy and industrial use, nuclear reactors, luminous watches, artificial radioactive elements distributed in nature by man). From the paper presented by R. M. Sievert to the study group, it appears that, at present, the most important contributions come from cosmic rays and from natural radiation from elements in the earth's crust and the human body. By far the most important man-made contribution is from diagnostic X rays.

There is a dearth of direct information about the genetic effects of ionizing radiations on man, but it is agreed that irradiation does induce mutations, some of which may be harmful. Opinions differ as to the proportion of mutations expected to be unconditionally harmful. T. C. Carter states that "it is commonly accepted as a working hypothesis that ionizing radiations do not induce new types of mutation, but only raise the mutation rates of existing alleles". This can be neither proved nor disproved, for any type of mutation may have occurred at some time in the past spontaneously. Since there is no theoretical or experimental basis for assuming that man-made radiations can produce alleles of an unknown type, many of the views expressed in science fiction and other forms of popular literature belong to the realm of fantasy. A point to be noted is that probably "ionizing radiation is responsible for only about one tenth of human spontaneous mutations". What causes the other nine-tenths is unknown, but it could be chemical substances. The final effect of a gene, unlike the gene itself, may be extremely variable, depending on a number of factors which may be grouped together under the term "environment". As Carter writes, "in no two individuals are the total genotype and the total environment identical, and therefore in no two individuals can the same allele be expected *a priori* to produce identical end effects". The harmfulness or otherwise of genes depends in part on whether they are homozygous or heterozygous. Thus the sickle-cell gene when homozygous produces severe anaemia, but when heterozygous it produces no symptoms, but does increase resistance to malaria; thus in some localities it is potentially life-saving and so advantageous. We know too little about human genetic structure to be able to determine, for example, whether individuals of the highest possible fitness are completely homozygous or genetically heterozygous. Both views can be argued.

Many questions were discussed in the study group to indicate the lines along which future investigations must

¹ *Chronicle of the World Health Organisation*, 1957, 2: 237 (August).

go before we can give any definite answer. For example: "Are all induced mutations harmful?" A line which is being followed in France by J. Lejeune is a study of sex ratios of the offspring of irradiated individuals. He states: "It is essentially in the X-chromosome that the lethal gene can be detected, through a study of the sex ratio. Owing to the chromosomal structure of sex, the X-linked lethal mutations appear in different forms according to the sex of the irradiated parent." L. S. Penrose points out that the older the parent, the more likely he is to have been exposed to mutagenic influences. A marked increase in chondrodystrophy and acrocephalosyndactyly is seen in the offspring of elderly fathers. Studies are also being made in populations where there are very high inbreeding rates, such as certain zones in Brazil. As a study on the effect of natural radiation, a particularly interesting investigation is going on in the monazite belt of Travancore. A. R. Gopal-Ayengar points out that a population of about 100,000 has lived in virtual isolation for very many generations in this area, where the background irradiation is unusually high. The population might be expected to show differences in mutation rates for particular traits. A control area, similar except that there is normal background radiation, exists in nearby areas.

A great many other possible lines of research were discussed. The report of the study group emphasizes that "there is at present an insufficient number of institutions where an adequate training in genetics, particularly in human genetics, can be given". It is believed that "medical undergraduates should all receive training in genetics and the teaching should be co-ordinated with that in radiology and the use of radioactive substances in medicine, so that the genetic hazards of diagnostic and therapeutic procedures are thoroughly understood. Medical men training as radiologists should have specific, more advanced instruction in genetics. Health physicists, radiological physicists and radiological technicians should also receive instruction in genetics as part of their technical training".

TO SLIM OR NOT TO SLIM.

MUCH has been written about the management of obesity, and many are the formulae which have been devised to reduce weight in the over-heavy, but there is still no unanimity of opinion as to the best treatment nor even as to the desirability of reducing weight. At a conference at the Cornell University Medical College and New York Hospital, A. Stunkard¹ reviewed his own extensive experience and the literature on the management of obesity. He points out that, in America at least, preoccupation with problems of overweight has become a national neurosis. With increased pressure on the medical profession by the obese for treatment, there is no increase in the effectiveness of treatment. Stunkard considers that the present position may be summarized with considerable accuracy as follows: "Most obese persons will not stay in treatment for obesity. Of those who stay in treatment, most will not lose weight, and of those who do lose weight, most will regain it." He says further that, if one considers a loss of 20 pounds in weight as satisfactory, published results do not show success in more than 30% of obese patients. The results of treatment, as indicated by published results and his own experience, are much the same whatever form of treatment has been given.

There is growing evidence not only that the treatment of obese persons is ineffectual, but that under certain circumstances it is likely to be dangerous. Severe emotional disturbances may occur during the course of a weight-reducing regimen. In an extensive nutrition clinic survey at the New York Hospital on weight reduction, it was found that 50% of the patients reported the presence of symptoms they attributed to their dieting. The common symptoms were nervousness, anxiety, restlessness, weakness and irritability. Stunkard believes that one should not start dietetic treatment of an obese patient until the patient presses strongly for a diet; and then a diet is

given, not so much for its therapeutic value as to safeguard the patient against the nutritional deficiencies which can result from the incredible diets which may be tried by the patient. He considers that the doctor-patient relationship is very important in treatment, and that the doctor should look for the conflicts in the patient's mind which may lead to over-eating. Attitudes of shame and dishonesty are prominent in many obese persons—shame because of failure to lose weight under treatment, and dishonesty in understating food intake. These are commonly related to stoppage of treatment. Where weight reduction has been satisfactory, usually the patients put on weight again, and this may be related to belief that the doctor has lost interest—"so what's the use?" "The treatment of obesity is likely to become more successful the less the physician concerns himself with obesity, and the more he concerns himself with the obese person and his problems in living."

With regard to the relation of obesity and weight reduction to life expectancy, all that can honestly be said at the present time is that ability to lose weight goes along with greater life expectancy. That obesity is harmful is suggested by life insurance statistics, and these do not show that obesity causes illness, but only that obesity is found together with illness, and the two may have a common origin.

Stunkard is not impressed with the use of drugs in the treatment of obesity, except occasionally chlorpromazine to treat the anxiety, not the obesity.

When an obese person presents himself for treatment, one has to decide by a careful review of all the circumstances whether the patient would really benefit by weight reduction, bearing in mind that the results of treatment, even by experts, are poor. Attention to the patient's life situation offers the best opportunity to help him lose weight and maintain this weight reduction.

ADVICE FOR MEDICAL VISITORS TO THE UNITED KINGDOM.

MEDICAL PRACTITIONERS planning to go to the United Kingdom should be aware of the Commonwealth Medical Advisory Bureau and of the many valuable ways in which it can help them. The Bureau was set up in 1948 by the British Medical Association in London, at its headquarters in Tavistock Square, with a view to welcoming and providing a personal advisory service to practitioners visiting the United Kingdom from the Dominions and Colonies. In addition to providing detailed information on matters of post-graduate education and helping those interested to find the facilities they need, the Bureau can give great assistance in matters of accommodation, private hospitality and the wide variety of matters on which the stranger in London is likely to need information. The only serious complaint that the Bureau seems to make about visitors is that they do not all make sufficient use of the Bureau's facilities. In particular the Bureau states that it can be of most service if the visitor gives as long notice as possible of his intended visit and provides such information as the following: projected date of arrival, mode of travel, whether accompanied by wife, period of stay, main and other objects of visit, and requirements from the Bureau. It is helpful if the visitor brings with him a letter of introduction from the local Honorary Secretary of the British Medical Association, but this is not essential. All communications should be sent to Dr. R. A. Pallister, Medical Director, Commonwealth Medical Advisory Bureau, B.M.A. House, Tavistock Square, London, W.C.1.

The Bureau has just issued its annual "Summary of Regulations for Postgraduate Diplomas and of Courses of Instruction in Postgraduate Medicine". This is a most comprehensive document, which should be consulted by all who intend to engage in any form of medical work or study in the United Kingdom. We understand that a copy of it is available for consultation at the offices of all Branches of the British Medical Association in Australia.

¹ *New York State J. Med.*, 1958, 58: 79 (January).

Abstracts from Medical Literature.

SURGERY.

Tetanus.

O. CREECH, A. GLOVER AND A. OCHSNER (*Ann. Surg.*, September, 1957) state that the tragedy of tetanus is not its dreadful symptoms or high mortality, but the fact that it could have been eradicated within the past 25 years by a vigorous programme of immunization with tetanus toxoid, yet the disease still occurs with frequency in some areas and remains a challenge to therapy. The Charity Hospital of New Orleans has been identified with the treatment of tetanus for more than a century, and in this article the authors discuss some 558 cases admitted from January 1, 1943, to December 31, 1956, giving an average yearly incidence of 0.3 to 1.1 per 1000 hospital admissions. In comparing these figures with previous years, they note a gradual decrease in incidence since 1906, and also that the average age of patients has increased, as has the incidence of the disease in females. Of all these patients, only one had received a complete immunizing course of tetanus toxoid, and only one had received tetanus antitoxin at the time of injury. The incubation period was 40% longer among survivors than among those who succumbed. The treatment employed for the two seven-year periods 1943 to 1949 and 1950 to 1956 was essentially the same, except that in the latter period antibiotics, tracheostomy, muscle relaxants and gastrostomy were added. From 1950 to 1956 the mortality was 10% less than for 1943 to 1949. However, review of the mortality since 1906 reveals a continuous and steady decrease throughout this 50-year period. Reviewing the various components of therapy, the authors point out that there is a lack of specificity in all the agents employed, and suggest that the most important single factor is good supportive care of the patient.

Staphylococcal Post-Operative Wound Infections.

C. HOWE (*Ann. Surg.*, September, 1957) states that there is a definite staphylococcal problem in some hospitals, and that it is widespread. In the field of post-operative sepsis, staphylococcal infections appear to be the main problem of many surgical services, the majority of these infections being caused by antibiotic-resistant organisms. The percentage of infection caused by staphylococci appears to have increased since the advent of antibiotics, but due to the historical predominance of this organism as a wound pathogen, the lack of long-term statistics and other changes in the general setting and type of patients, the present evidence does not allow the definite conclusion that this is universally the case. The author considers that the predominance of antibiotic-resistant bacteria in hospitals and the appearance of masked and delayed infections are new aspects to an old problem. There is no evidence to show that present-day

staphylococci are more virulent than their forebears, but there is now a wider prevalence in hospitals of the same virulent strains that were always pathogenic for man. Statistical data are presented on the incidence of wound infection in a university hospital in 9412 clean operations over an eight-year period. During the time of this study there was a significant increase in the wound infection rate and in the percentage of infections caused by *Staphylococcus aureus*. Following institution of a preventive programme the staphylococcal carrier rate fell to normal levels, either fortuitously or consequentially. The infection rate also fell initially, but then increased again during the last year despite a low carrier rate. This divergence of carrier and infection rates is said to be in keeping with the opinions of others, namely that a high carrier rate may be the reflexion rather than the cause of the infectious process, that the factors which determine its establishment and degree may be related largely to the host, that the particular strain and virulence of the organism carried is probably more important than the number of carriers, and that the presence of an active infection in the hospital environment is more dangerous than a high carrier rate. However, the author does not imply that the carrier plays no role in cross-infection. He considers that it is obvious that the staphylococcal problem will not be solved by the use of antibiotics. The most important area of prevention lies in careful wound management and surgical technique. Prevention of contamination and cross-infection by emphasis upon rigid antiseptic and aseptic methods constitutes an almost equally important line of defence. The routine use of prophylactic antibiotics in clean surgery may be more harmful than beneficial. Housekeeping cleanliness and environmental disinfection are also important. Once wound infection is established, early control is the most important issue. There must be prompt adequate drainage and isolation. The role of antibiotic therapy in the treatment of wound suppuration is adjunctive rather than curative; its function is one of protection against invasive infection and metastatic complications incidental to the surgical attack upon the lesion.

Stitch Abscesses in Cardio-Vascular Surgery.

H. BARNSON, F. SPENCER AND I. BENNETT (*Ann. Surg.*, September, 1957) report five cases of staphylococcal stitch abscesses of the myocardium or great vessels, which were strikingly resistant to massive antibiotic treatment, but complete eradication of infection followed removal of the sutures. The authors also discuss the preliminary results of experimental studies in dogs using contaminated suture materials of several types, in an effort to find out whether the composition of sutures used was important in producing infection when minimal contamination occurs. They state the reaction to several materials implanted in the right ventricular myocardium of dogs. In the presence of minimal contamination by staphylococci, silk, stainless steel, nylon, dacron and catgut sutures led to the formation of infected granulomata from

which organisms could be cultured for as long as six weeks. They were interested to see that the infections associated with catgut regularly subsided and healed spontaneously after three weeks, presumably because of the gradual absorption of the catgut. However, they state that a good deal more evidence would be needed before the use of catgut sutures can be recommended for cardio-vascular surgery.

Right Phreno-Hepatic Incarceration.

D. J. DUGAN AND D. L. MERRILL (*Am. J. Surg.*, August, 1957) have treated eight cases of herniation of the liver through the right side of the diaphragm. Four of these cases are described in detail. A constant finding is a history of injury, often incurred in an automobile accident, and usually of such severity as to require hospitalization. Symptoms are delayed and may be obscure or absent. These consist of pain in the chest and upper abdomen, usually on the right and variable in nature. Occasionally the pain may be disabling. All the patients in this series were of a heavy body build, and obesity is believed to be a factor in the pathogenesis of this disorder. Skiagrams usually show a mass in the right chest just above and intimately associated with the diaphragm. Moderate leucocytosis has been present in each case. The condition is treated surgically by reduction of the liver and repair of the diaphragm through a right thoracotomy. The delay between injury and onset of symptoms together with the gross appearance of the lesion suggests its gradual development. It is thought that the first stage is a weakening or split in the diaphragmatic muscle at its most superior portion — anatomically, the antero-medial segment. With the passage of time, there is moulding of the liver parenchyma through this splayed diaphragmatic muscle with eventual hepatic incarceration, the positive abdominal pressure and negative thoracic pressure assisting this process. The presence of the lung may account for the flattening of the protruded liver, which gives a characteristic mushroom appearance. Surgical correction is indicated because liver strangulation may occur due to pressure of the diaphragmatic rim and because symptoms may become disabling. Repair in each case in this series has been curative with no recurrence or mortality.

Primary Subclavian Vein Occlusion.

R. H. LOE (*Am. J. Surg.*, August, 1957) briefly reviews the literature and reports three more cases of acute subclavian vein occlusion. Two developed in patients who had previously undergone operation for carcinoma of the breast, but without evidence of metastasis. Most authors are agreed that some form of external pressure on the subclavian or axillary vein is the primary cause of the thrombosis. Radical mastectomy results in anatomical changes which could lead to subclavian or axillary vein occlusion, and in cases of delayed swelling of the arm following this operation, usually considered due to metastasis, the possibility of thrombosis must be taken into account. In the third case reported in this paper venograms performed long

after the acute phase subsided demonstrated a block as the vein passed over the first rib. At operation the *scalenus anticus* muscle was seen to be markedly hypertrophied, completely obstructing the subclavian vein. Cutting the muscle released the pressure and opened up the vein. Treatment of the acute phase should be conservative. A rather large percentage of patients have residual symptoms in the shoulder and arm which greatly resemble those generally associated with the *scalenus anticus* syndrome. It would appear that this condition is actually another manifestation of that syndrome.

Polyvinyl Sponge in Repair of Hernias.

J. I. ABRAHAMSON and O. T. JONASSEN (*Surgery*, August, 1957) report the use of slices, two millimetres thick, of polyvinyl sponge in the repair of 16 recurrent hernias. Of these, six were direct inguinal hernias, three were femoral hernias, and seven were recurrent post-operative incisional hernias. The slices were cut from the large commercially available block with the slicing machine found in the hospital dietary department. The block was completely frozen in a deep freeze before it was cut. The slices were then sterilized in boiling water for 20 minutes, after which they were found to be soft and pliable, the material swelling to two to three times the original thickness on boiling. The authors used a single sheet of sponge in the repair and cut it to extend about an inch beyond the edge of the defect in all directions. The material was fixed to the tissues under moderate tension with multiple fine sutures of catgut or silk. When placed beneath the fascial layer, no serum collections were noted, but when placed in the subcutaneous tissues such collections were occasionally seen. Two of their cases were complicated by infection, but the wounds healed completely without extrusion of the sponge or disruption of the repair after proper drainage and antibiotic therapy. They followed their cases for periods up to 30 months without any recurrence, and found that all operative wounds were soft.

The Arterial By-Pass Graft.

J. H. PAYNE, N. E. RUDY AND T. WINSOR (*Am. J. Surg.*, August, 1957) report the results of 23 by-pass grafts in 15 patients with localized arteriosclerotic obstructions in the arteries of the legs. The obstructions were located at sites varying from the aorta to below the popliteal artery. Lyophilized homografts were used in each case, and at times several pieces were sutured together to form a long by-pass, the longest being 34.5 centimetres in length and extending from the lower abdominal aorta to the popliteal artery. Additional surgical procedures, including sympathectomy, thrombo-endarterectomy and bifurcation graft, were performed in a number of cases. All patients complained of intermittent claudication, and 18 of the 23 limbs were painful at rest. Two had ischemic ulceration. Pre-operative studies of the blood flow were made using the vasograph, and arteriograms were taken in all cases. Post-operative arteriograms were taken in only four cases because

vasographic studies were considered safer and better than angiograms. A striking clinical observation was the infrequent occurrence of obstruction in the arterial branches which come off at right angles, and in an attempt to imitate nature the end of the graft was inserted at an angle between 45° and 90°. Technically, this is easier to accomplish if the graft is brought down the thigh in the subcutaneous layer rather than deep to the fascia. Of the 23 extremities treated, the initial results were considered excellent in 17. Two were improved, and in four the initial results were poor. Two of the latter had immediate revision of their grafts and are now classified as excellent. In no case was the blood flow impaired by the surgical procedures, although in one the graft failed to prevent an amputation. There was one death. The by-pass procedure proved to be less satisfactory for obstructions of the popliteal artery and vessels below the knee, due most likely to inadequate arterial run-off. While angiography employing long film techniques and serialized exposures is necessary to give an acceptable picture of the diseased arterial tree, vasographic studies provide more accurate information regarding the run-off and the functioning collateral circulation, and are therefore important in the proper selection of patients. Vasographic examination is valuable also in following the progress of patients and makes post-operative angiograms unnecessary.

Fatal Doses of Radiation.

J. ALLEN *et alii* (*Ann. Surg.*, September, 1957) state as a result of their studies that despite all efforts and generous support in this field, there is no evidence that mortality has been materially reduced by any procedure, including blood and platelet transfusion, plasma, antibiotics, fluids and electrolytes and many other agents once radiation exposures in the range of the LD50 or greater have been encountered. They consider that those capable of survival are likely to do so regardless of current therapeutic agents. At the present, more lives are likely to be saved by deploying most, if not all, blood and blood products for treatment of casualties which have received little or no radiation. They consider that though hemorrhage, infection and anemia can kill, their control does not lower the mortality rate materially once an exposure of LD50 has occurred. Among the survivors, any surgical procedure not absolutely essential should be delayed for at least three months, though there is no evidence that surgery performed within the first two days of total body exposure to radiation at dosages up to 400r carries a great risk, or contributes materially to the mortality rate from radiation. Partial shielding of the red marrow from radiation is the most effective means available for improving the survival rate among those receiving amounts of radiation which would otherwise be fatal. The leucocyte and platelet counts are of prognostic value only when they are severely depressed. It has been found that these elements of the blood may be as severely depressed in individuals who will recover as in individuals who will die. In radiation injury, all organs and structure may be disordered and in some cases the

disorder of one organ may seriously affect the function of another. The authors consider, therefore, that no important forward progress has been achieved in the past 15 years towards increasing the survival rate among those who have been seriously exposed.

The Fate of Arterial Homografts.

D. SZILAGYI *et alii* (*Arch. Surg.*, October, 1957), in order to investigate the fate of human arterial homografts, review the angiographic findings in 150 cases in which homologous arterial transplants had been used, and they correlate these with the results of the histological study of eight aorto-iliac and 15 femoral graft specimens, recovered in full or in part at secondary operations or at autopsy. These studies show that although aorto-iliac homografts, judged clinically, function well up to four years after insertion, angiograms show degenerative changes after two years which tend to increase in frequency and seriousness with the passage of time. Degenerative changes in femoral homografts are much commoner than in aortic grafts and appear earlier. Three years after implantation, as seen by angiography, only about one-third of femoral homografts appear to be free from significant structural changes. The authors consider that the most important factor determining the histological fate of aortic and femoral homografts is the structural make-up that characterizes "elastic" and "muscular" arteries respectively. Since the so-called connective tissue replacement of arterial homografts is slow, inconstant, and incomplete, the task of the maintenance of the mechanical integrity of the implants falls mainly on the original components of the vessel wall. The efficacy with which this task is performed is enhanced by the abundance of durable and biologically inert elastic fibres in the aortic wall; it is handicapped by the high proportion of perishable and biologically active smooth muscle cells in the media of the femoral artery. The authors conclude that in spite of the excellence of their technical qualities and the brilliant early results they have generally yielded, from a long-range point of view, both the human aorta and the human femoral artery suffer from serious deficiencies as homologous vascular substitutes, the femoral artery in particular being poorly suited to serve as a homograft.

A Complication of Parotid Surgery.

H. MARTIN AND J. HELSPER (*Ann. Surg.*, November, 1957) present clinical evidence of spontaneous return of function following surgical section or excision of the seventh cranial nerve in the surgery of parotid tumours. Even following surgical sacrifice of a considerable segment of the seventh cranial nerve, including a portion of its main trunk, there can be spontaneous recovery of function in a fair percentage of cases without resort to nerve grafting or any other form of neurotaphy. They report eight cases of such recovery out of 28 cases occurring in the five-year period 1949 to 1954. They conclude that the motor pathways to the facial musculature are re-established by way of the fifth cranial nerve.

Brush Up Your Medicine.

THE TREATMENT OF NEPHROSIS.

THE disease "nephrosis", or Ellis type II nephritis, is remarkable for the gross accumulation of extravascular fluid and copious albuminuria which occur, as well as for the protracted course of the disease in most instances. Unfortunately, the aetiology remains unknown, so our therapeutic measures comprise a mixture of empiricism and symptomatic relief, the relative merits of which will be discussed.

Bed Rest.

There is little evidence to suggest that bed rest influences to advantage the course of this disease at any stage. Gross oedema must, inevitably, restrict the patient's activity, but movement out of bed to a chair ensures the gravitation of fluid to the legs rather than to the pleural cavities.

Protein Replacement.

Loss of body proteins is excessive in the presence of gross proteinuria, and a high protein intake is essential, preferably in the region of 120 grammes *per diem*. On the other hand, for those patients who eventually progress to an azotemic state, restriction of protein intake to a maintenance level of 30 to 40 grammes *per diem* and a high carbohydrate intake are required to retard the rate of nitrogen retention. In the words of Sir Albert Coates, "villi before veins" is the guiding principle in protein administration. Intravenous infusion of serum, plasma, salt-poor albumin or amino acids is not very effective as far as protein replacement goes, although the use of some of these to initiate diuresis is a different matter altogether.

Reduction of Oedema.

Reduction of oedema may be effected by the following measures.

1. Restriction of sodium intake is necessary, although care should be taken to prevent the reduction of serum sodium or chloride levels to states of depletion which may produce the opposite effect—that of increasing the oedema or nullifying the response to mercurial diuretics. Early estimations of the serum sodium content often give results below the normal level of 143 milliequivalents per litre.

2. Mercurial diuretics are of considerable assistance in controlling the tendency to increasing oedema. A disinclination to use mercurial diuretics in the presence of renal disease is not uncommon, and is quite well founded in circumstances of acute glomerular and tubular damage, perhaps indicated by haematuria, oliguria and granular cylinduria. However, apart from the occasional individual sensitivity to mercury, there is no reason to withhold mercurial diuretics, such as "Neptal", "Thiomerin" and "Merloran" in nephrosis. Due consideration should be given to the possible development of sodium and potassium depletion, as mentioned earlier, and oedematous areas should be avoided when the injection is given.

3. "Diamox", when used on three consecutive days each week in the recommended dosage, is of value, although its effect is unpredictable. In the late stage of azotemia with reduced bicarbonate levels in the blood, its use is, of course, contra-indicated.

4. Successful control of nephrotic oedema with cation exchange resins has been reported by a number of workers, but generally they have not been particularly helpful. Apart from their cost, the bulk to be consumed each day and frequent gastro-intestinal upsets have been the main reasons for discontinuing their use.

5. Urea given in doses of 60 to 90 grammes per day is occasionally useful in promoting diuresis, but gastro-intestinal disturbance often limits its use to a few patients able to tolerate it.

Serum Albumin.

The intravenous administration of pooled serum is of limited value, and is surpassed by the use of salt-poor albumin given in doses of 50 grammes per day. However, the diuresis which usually follows its infusion is transient, and hardly justifies the high cost of the albumin given.

Dextran.

Dextran has been used successfully by Mollison and Rennie (1954) and others to produce diuresis in nephrosis. It is given in doses of 500 cubic centimetres of a 10% solution over a period of four hours. The diuretic effect is again often temporary, but once started, may continue in some cases. Minor toxic effects, such as headache, nausea, pyrexia, rashes and loin pain, have been reported.

Fever Therapy.

Because of the dramatic remissions which have, on occasions, followed intercurrent infection, particularly with the exanthemata such as measles, attempts have been made to induce a similar response by using T.A.B. vaccine or malaria. The former is not of much value, and satisfactory transmission has not been achieved in the few cases in which I have attempted malarial infection.

Hormone Therapy.

Over 30 years ago, Epstein viewed the treatment of nephrosis as that of endocrine deficiency, administering large doses of thyroid extract and demonstrating the unusual tolerance which these patients exhibit to that hormone. Of recent years, both cortisone and ACTH have been used with considerable measure of success in cases of nephrosis. Hydrocortisone derivatives, prednisone and prednisolone, have been used alone or in combination with corticotropic hormone (ACTH), and courses of treatment recommended have been either intermittent in type or continuous administration over some months.

It has been my practice to use a long-acting preparation of ACTH, given as a daily intramuscular injection of 40 international units to adults, for a fortnight. Diuresis may commence at any stage during or after cessation of the course. If this does not happen within the week after therapy has ceased, the course is repeated, or in some instances, the frequency of injection is altered to every second or third day, and the treatment is continued for some weeks.

Any tendency for the oedema to increase in amount during therapy can usually be controlled by the use of mercurial diuretics. Prednisone or prednisolone has been used with good results in conjunction with ACTH, especially in those cases in which the onset of diuresis is delayed.

Vitamin C given intravenously in doses of one gramme, once or twice a week, has appeared to enhance the effect of ACTH therapy on occasions.

Apart from the tendency for the oedema to increase during the early phase of hormone therapy, few unwanted reactions have been encountered. Restlessness amounting to pronounced psychic disturbance on one occasion has been the only worrying complication. It resolved completely on cessation of ACTH and did not return during a second course of treatment.

Nitrogen Mustard.

Reports as to the toxicity of nitrogen mustard have made its use unattractive, and although some success has been reported from overseas, it would seem hardly sufficient to justify further trial.

Direct Removal of Fluid Accumulations.

There is no need to enlarge upon the obvious indications to remove large pleural and ascitic collections. However, it may be more important at this juncture to recommend the ancient procedure of acupuncture of the legs, which is often remarkably effective when other measures fail.

Treatment of Infections.

The susceptibility to infection in nephrosis is well known and possibly related to the depletion of gamma globulin. Amongst the sites of secondary infection, the urinary tract itself is by no means an uncommon one. Pyelonephritis complicating either nephritis or nephrosis is stated to be a rare occurrence, but this has not been my experience, especially as far as nephrosis is concerned. In such cases, the prospect of further renal damage from acute bacterial infection indicates the need for prompt and adequate antibiotic therapy.

Prophylaxis.

It is my belief that nephrosis is in fact a form of nephritis, although as yet no clear relationship to streptococcal infection has been established as in type I nephritis. Because of this

view, it has been considered reasonable to place all patients with nephrosis on sulphonamide prophylaxis for the ensuing two years, using "Sulphadimidine", in a dosage of 0.5 gramme per day for children and one gramme per day for adults.

Phenoxymethyl penicillin is also used in prophylactic therapy, and although preferable in some respects, its use is at present restricted as a National Health Service benefit.

Removal of infected tonsils during a phase of remission is also considered very important.

Conclusion.

In conclusion, the prognosis in nephrosis is rather better than the protracted, oedematous course of the disease would seem to suggest, in both its immediate and its remote aspects. Even after many months of gross oedema recurring over some years, the expectation may still be good and recovery apparently complete. This view is more liberal than that taken by Ellis, Evans and Wilson in 1942, and the improvement may be due in part to the control of secondary infection, which was once an important contributory cause of early death, as well as to the introduction of steroid therapy.

DONALD G. DUFFY,

Melbourne.

Public Health.

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL.

The National Health and Medical Research Council met for its forty-third session at Melbourne on May 23, 1957. The report of the meeting has now been printed, and a good deal of what it records is still of interest. The following selected items are published for general information.

Public Health Committee.

The Council gave particular consideration to the following matters from the report of the Public Health Committee, presented by Dr. C. E. Cook.

Blindness, Notification of.

The Council accepted the recommendation that the States should make blindness compulsorily notifiable, using the definition recommended by the United Nations Technical Working Group on the Rehabilitation of the Handicapped. It was decided that as the Federal Council of the British Medical Association viewed compulsory notification with disfavour, the Commonwealth Department of Health should consult the Association, explaining the reason for the Council's decision and emphasizing that it has been taken at the particular request of organizations for the blind.

Drug Addiction.

The Council accepted the recommendation that in States where dangerous drug legislation provided no definition of addiction, early action should be taken to define addiction in accordance with the definition adopted by the World Health Organization. The Council agreed that, once addiction was notifiable, the State Director-General, either by statute or by administrative action, could be provided with an expert consultative committee to advise upon the disposal and the treatment of individual addicts. The active cooperation of the medical profession was desirable, and the Council recommended that the Commonwealth Department of Health arrange with the Federal Secretary of the British Medical Association for comprehensive discussions of the role of the practitioner and of the drug authority in the control and treatment of addiction. The procedure would permit the medical practitioner to refer to the State Director-General as a consultant.

Bronchogenic Carcinoma.

The Council accepted the following recommendations relating to lung cancer: (a) Tobacco smoking and in particular cigarette smoking is definitely a contributory factor in the production of cancer of the lung, the incidence of which is increasing and is highest in those who smoke most heavily. (b) States should commence publicity campaigns: (i) to warn non-smokers against acquiring the habit of smoking; (ii) to induce habitual smokers to cease smoking or to reduce consumption. (c) The Commonwealth Govern-

ment should give consideration to setting up a body representing the Commonwealth Department of Health and primary industry, the C.S.I.R.O. and the tobacco industry to inquire into and make recommendations upon measures to reduce the risk confronting tobacco smokers.

Unanimity could not be reached in respect of the following recommendation from the Public Health Committee: Since it would be rational to withdraw official recognition from the addiction, consideration should be given by the appropriate authority to the removal of tobacco from indices used in ascertaining the cost of living for purposes of basic wage determinations.

Industrial Hygiene Committee.

The report of the Industrial Hygiene Committee, which was adopted by the Council, was presented by Mr. D. J. Stevens, who drew the attention of the Council to the sections dealing with the use of fluoroscopy machines in shoe stores, the use of dieldrin as a moth-proofing agent, and the draft regulations under the *Radioactive Substances Act*.

The Council agreed that the use of X-ray fluoroscopy machines in shoe stores should be banned.

Regarding the use of dieldrin as a moth-proofing agent, the Council appointed Professor Ford and Dr. Gordon Smith to visit the woollen mills at Geelong and report to the next meeting of the Council.

The draft regulations under the *Radioactive Substances Act* were accepted by the Council.

Antibiotics Committee.

The work sheet submitted by the Antibiotics Committee was discussed, and, with the exception of item 42 appearing on page 5, which was amended to read in the remarks column "Emetine or a satisfactory substitute", was accepted by the Council.

The work sheet, as amended, was to be forwarded to the Editor of THE MEDICAL JOURNAL OF AUSTRALIA for publication in an issue of the Journal.¹

Radiotherapy Advisory Committee.

The report of the Radiotherapy Advisory Committee was presented by Mr. D. J. Stevens and accepted by the Council and included the following recommendations:

1. In accordance with the recommendations of the International Commission on Radiological Units and Measurements, the Radiotherapy Advisory Committee of the National Health and Medical Research Council recommends that as soon as possible the use of the rad should be introduced into radiotherapeutic practice in Australia using values for conversion agreed upon by the Committee and based upon data published by the International Commission on Radiological Units and Measurements.

It is further recommended that individual institutions should not change these conversion factors which have been accepted by the Committee and which will be subject to periodical review.

2. Noting that the annual cancer conferences arranged by the Commonwealth Department of Health have been discontinued since World War II, believing that the Radiotherapy Advisory Committee of the National Health and Medical Research Council can make a significant contribution to radiotherapeutic practice in Australia in the treatment of cancer, it is recommended: (i) That the Radiotherapy Advisory Committee should meet routinely twice each year in the autumn and spring. (ii) That at one of these meetings a radiological physicist from the Queensland Radium Institute, the Hospitals Commission of New South Wales, the South Australian Anti-Cancer Campaign Committee and the Cancer Institute Board (Victoria) be co-opted to the Committee to take part in discussion on physical aspects of radiotherapeutic practice.

In view of the application of newer types of radiotherapy equipment and techniques (in particular super-voltage and rotational techniques) in the treatment of cancer, the introduction of a new concept of radiation dose specification (namely, the rad) and the increasing use of radioactive isotopes in treatment and investigation, the Radiotherapy Advisory Committee of the National Health and Medical Research Council is of the opinion that it is essential that responsible authorities throughout Australia provide adequate

¹This work sheet was published in the issue of August 3, 1957.

radiological physical services integrated with particular clinical groups.

National Radiation Advisory Committee.

Sir Macfarlane Burnet addressed the Council in the following terms on the formation of the National Radiation Advisory Committee:

I asked for this opportunity to be present at the discussion of radiological hazards because of my recent appointment by the Prime Minister as Chairman of the National Radiation Advisory Committee. The primary justification for that committee is to provide an assurance to the community that all precautions were being taken to prevent medical or genetic damage to human beings or domestic livestock from fall-out from bomb tests. It was felt that the chairman should be a medical scientist rather than any one directly concerned with the physical or military side of the tests, and that the committee should have in addition an overall advisory function on the general hazards of ionizing radiation.

I have defined the function of the Committee as ensuring that any medical or genetic damage due to ionizing radiation is kept to the lowest level that is compatible with the legitimate needs of defence, industry and medical care.

There are four fields in which ionizing radiation may provide hazards to human well-being—medical or genetic: (a) Atomic explosions (i) in the vicinity of test explosions, (ii) as a result of global fall-out. (b) Nuclear reactors (i) to workers in nuclear plants, (ii) the risk of adjacent areas of chronic or catastrophic escape of active material, (iii) risks associated with the handling and disposal of radioactive wastes. (c) Industrial uses of ionizing radiation (i) X ray, (ii) high intensity isotope sources of γ rays. (d) Medical uses of ionizing radiation (i) diagnostic uses of X rays, (ii) radiotherapy, including X and γ ray and internal use of radioisotopes.

Since the publication of the official United Kingdom and United States reports in July, 1956, the medical use of X rays has been recognized as the most important source of ionizing radiation of the population generally, and, within approximately the last year, five important indications have been recognized that ionizing radiation is a potent cause of leukaemia. These are: (i) leukaemia at Hiroshima, (ii) ankylosing spondylitis, (iii) leukaemia mortality of radiologists, (iv) X ray of thymus, leukaemia and thyroid cancer, (v) abdominal X rays in pregnancy—childhood leukaemia and cancer.

At the present time, it is the logical working hypothesis that the threefold increase in leukaemia since 1920 is wholly due to the medical use of X rays. Leukaemia may well be taken as visible evidence of somatic mutation and presumptive indication of genetic mutation in the reproductive cells. We cannot measure that latter, but we can assess leukaemia.

Suggestions for Action.—(i) Effective action must be at the initiative of the radiologists and policed by them. (ii) The radiation "Passbook" system should be instituted at once: (a) to allow subsequent action based on the extent of permissible exposure, (b) to act as a reminder to doctor and radiologist of the cumulative character of the risk, (c) to help in eventual assessment of risks on a more accurate basis. (iii) In at least two major centres a small team should carry out an epidemiological survey of the incidence of leukaemia in relation to X-ray and perhaps other potential aetiological agents, e.g., benzol and certain drugs. It will be essential to establish the connexion between X rays and leukaemia—if it exists—in Australia as well as in the rest of the world if effective action is to be taken. There is a definite possibility of Metcalf playing a major part in any investigation which might be initiated in Melbourne.

Committee on Radiation Hazards, Establishment of.

The Council agreed to the establishment of a committee to be known as the Radiation Hazards Committee, with the following terms of reference: (a) To carry out an assessment of the population genetic dose for Australian conditions and the potential leukaemogenic dose of diagnostic and therapeutic radiology. (b) To prepare recommendations which would assist the medical profession in the evaluation of the genetic and somatic hazards in terms of the medical necessity for use of ionizing radiation in medical practice.

(c) To encourage surveys of long-term effects of radiation exposure on special groups of patients or radiation workers. (d) To act as an authoritative body through which appropriate instrumentalities and the general public might be informed of the significance of the contribution of diagnostic and therapeutic radiology to the genetic and somatic dose of the population. (e) Carry out any further work considered necessary.

Fluoridation of Water.

Dr. A. Fryberg brought before the Council the question as to whether or not the fluoridation of water supplies was, in view of certain overseas reports, desirable. The Council reaffirmed its previous decision: Resolutions 1 and 2 of the thirty-sixth session.

Gamma Globulin.

The conditions for the distribution and use of gamma globulin were reviewed by Dr. P. L. Bazeley and Dr. C. E. Cook.

The following recommendations for the distribution and use were accepted by the Council: (i) That gamma globulin be used for the prophylactic treatment of: (a) poliomyelitis—all contacts not immunized with Salk vaccine; (b) measles—exposed susceptible individuals, especially children and pregnant women; (c) infectious hepatitis—susceptible persons exposed to a known source; (d) rubella—women without a history of prior German measles attack who experience exposure to the disease during the first three months of pregnancy. (ii) That it also be used for the treatment of: (a) *Herpes zoster ophthalmicus*; (b) agammaglobulinemia. (iii) Other uses: Gamma globulin may be made available at the discretion of the Commonwealth Directors of Health of capital cities, or the State Director of the Red Cross, for other conditions. (iv) That gamma globulin be made available from the Commonwealth Directors of Health and State Departments of Health and from the Red Cross for metropolitan distribution, and for the State Health Departments to arrange rural distribution through base hospitals.

Matters Brought Forward by the British Medical Association.

Road Accidents from a Public Health Point of View.

Dr. W. F. Simmons presented the British Medical Association request that the Council consider the road accident problem in Australia from a public health point of view. After discussion, it was decided that the fundamental causes of road accidents required to be very much more carefully studied than they had been up to date. It was suggested that each State should set up a special committee to which all data should be made available, particularly in relation to the effect of hypnotics, tranquillizing and other drugs.

Dr. Simmons suggested that, as the question was raised by the Victorian Branch, perhaps a committee could, in the first place, be set up in that State and their views and findings made available to the other States.

Facilities for the Treatment of the Aged and Chronic Sick.

The Council agreed that this was, in the main, a matter for the States. The Commonwealth made contributions towards hospital services and provided invalid and old-age pensions. The Council had previously recommended to the States that they provide fellowships in geriatric nursing. Matron Burbidge informed members of a donation of £2000 by a Melbourne businessman to send a nurse to the United States for training in geriatric nursing.

Survey of the Incidence of Specific Diseases in the Native Population.

Dr. Simmons, on behalf of the Western Australian Branch of the British Medical Association, asked the Council to consider and recommend upon a proposal that the Commonwealth should undertake medical surveys of the Australian native population and provide improved facilities for medical treatment of the native races in all States.

The Council was reminded that at the thirty-ninth session, May, 1955, detailed recommendations on this subject had been submitted by the Public Health Committee and adopted by the full Council. These were: (a) The Commonwealth, if so requested by a State, should cooperate with State authorities in conducting medical surveys of the native population in the State to ascertain the incidence of disease

and to determine measures necessary for providing adequate treatment. (b) The Commonwealth should study means whereby medical and pharmaceutical benefits under the *National Health Act* can be more effectually provided for the native population living in contact with white communities. (c) A special committee representing the Commonwealth Department of Health, the Commonwealth Department of Social Services and a State Department of Native Welfare should be set up to devise a more suitable formula for determining the eligibility or otherwise of any native for social service benefits.

School Medical Officers' Conference.

The report of the School Medical Officers' Conference was presented by Dr. Cook, who called attention to recommendations for which the Conference particularly sought the Council's endorsement. (a) The Conference had expressed deep concern at the continuing policy of admitting young handicapped children to institutions, and recommended that every effort should be made to provide adequate services accessible to them whilst living at home. (b) The Conference recommended that child guidance clinics should be part of the Schools Medical Service and not segregated from the medical staff by integration into the Education Department.

The officers attending the Schools Medical Conference had discussed these and other recommendations with the Public Health Committee, and the Council was asked for its endorsement of these principles and requested if possible to issue a public statement embodying them. The Council gave its endorsement to these recommendations of the Conference.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

THE ADMISSION OF WOMEN AS MEMBERS OF THE BRITISH MEDICAL ASSOCIATION.

[From the *Australasian Medical Gazette*, September, 1892.]

It is with great satisfaction that we hear that the British Medical Association has revoked that portion of its rules which has hitherto prevented the admission of ladies who have become qualified medical practitioners to its ranks. We have always advocated the admission of women to the profession, as we have held the opinion that in many cases they are quite as suitable as the opposite sex, and that it would have been a manifest injustice not only to the aspirants, but to those persons who desired to have the services of female practitioners to attempt to prevent it. Having been admitted as medical practitioners, it is but a logical sequence that they should be permitted to avail themselves of all the privileges and advantages to which similar admission entitles men. The parent society in making this reform but carries out the wishes of its branches in all parts of the world. Resolutions we know were sometime passed at meetings in New South Wales, Victoria and South Australia, and forwarded to the Home Association, and by cable we are informed that similar action has been taken in India and South Africa. In these colonies applications for membership have been made by registered female practitioners and they were only not at once accepted from loyalty to the parent Society. The only objection having been removed by abrogation of the adverse rule such applications will now be promptly considered on their merits and decisions arrived at accordingly. Some few members have expressed their objection to the admission of women on the ground that at a meeting of mixed sexes the male members may feel handicapped in the discussion of some cases by the presence of ladies: this objection we feel has no just foundation, for at a meeting of such a character all should become for the time sexless, and under such circumstances any case, however tender the ground may seem to the uninitiated, may be discussed without arousing any ideas but those which are legitimately scientific.

[From the *Australasian Medical Gazette*, March, 1893.]

Dr. Frances Dick of Sydney has been elected a member of the New South Wales Branch of the British Medical Association, she being the first lady member admitted to any of the Australian Branches of the Association.

Correspondence.

DR. MERRILL MOORE.

SIR: Your review of Dr. Merrill Moore's last collection of poems, "A Doctor's Book of Hours" (M. J. AUSTRALIA, 1958, 1: 251), reminded me that it would be fitting for somebody in Australia to write a personal appreciation of Merrill Moore himself. There are many Australians whom he looked out for in Boston and befriended before his premature death late last year.

When I was in the United States last year Dr. Leo Alexander introduced me to him, having overruled my diffidence about meeting a literary celebrity by telling me that Dr. Moore did not like to miss any Australian or New Zealand doctors who were in town, since he had particular associations with them.

It turned out that Dr. Moore was entertaining the crew of S.S. *Whangaroa* from Auckland. In recent years he used to meet many of our ships, anxious to show the crew the town, and to talk about Australia, New Zealand and the Pacific Islands. It was in the islands that he met many of our servicemen as a military doctor during the second World War. He liked them a good deal, and told me they "died well".

Looking back now, one is bound to speculate that when he said that, he must have thought of his own condition, for he died of cancer late in 1957. A few months ago he wrote a letter, telling me I should not miss going to Alice Springs, and some other chatty trivia. Before I got around to replying, his death was reported in *Time* magazine. In common with many Australians, I owed him a debt.

As your reviewer truly says, Moore's poetry is not everyone's cup of tea. I think his readers are mostly medical, for one thing. H. W. Wells, Professor of English at Columbia University, describes him as realizing the common ground between poet and physician, each a scholar of the human personality. "He studies fear, hope, depression, passion, sexual mores, and various illusions, those of alcoholism and drugs being conspicuous. . . . To the æsthetic detachment of the poet, he adds the compound of sympathy and aloofness forced as an ideal and to some extent as an actuality on the medical profession. Hence his comedy, of which the sonnets possess much, is reticent and urbane, his tragedy controlled and austere."

I am sorry your reviewer quoted only the grotesquely humorous fragment about a sexual braggart, boasting his lady friend had him bite her. Even in its context this would be a little startling. Kindly allow me to select a more reticent quotation: "And to the Young Men." There is not necessarily anything sexual about this; it was in my anthology at school ("The Albatross Book of Living Verse", edited by Louis Untermeyer), and we may have learned it because it was the last poem in the book, and thereby conspicuous. Dr. Moore was somewhat surprised and pleased I knew it (though none too accurately; neither did he), and so was I.

And to the young men awaiting their sacrifice
You brought water in an invisible pail
And promised them the plans would surely fail
That were written against them, recorded in the stars.
And you brought straw and padded the cold bars
Of the prison beds whereon the young men lay.
And sung to some at night and fanned by day
Those who were fevering into paradise.

But even then you did not do enough.
For you remember a boy, the silent one?
With a silent eye, who scarcely loved the sun,
And felt too keenly the winter wind's dry sough?
Well, you should have brought him cresses from a far
stream
Over which nymphs and under which naiads dream.

For Merrill Moore, this fine sonnet is unusually elusive in its main symbol. To me at school, it was a figure of speech

about adolescence, reassuring in a kidding but understanding sort of way. To me now, it recalls Merrill Moore, most lyrical of medical poets, asking his questions about Australia, of Australians, in the Harvard Club in Boston. His apartment was almost next door, so he used the club for a drawing room. Especially vividly it recalls Dr. Moore expostulating with a frigid looking alcoholic, probably a patient, in the falling snow on the steps on Commonwealth Avenue. Meanwhile he was seeing me on my way.

Yours, etc.,

J. F. CAWTE.

Receiving Home,
Enfield,
South Australia.
February 26, 1958.

FATAL CORONARY OCCLUSION AND EXTREME STRESS.

SIR: The much publicized death of a member of the Royal Australian Air Force appears to illustrate the two main factors in the mechanism of coronary occlusion.

The facts appear to be that the deceased was a 27-year-old Royal Australian Air Force pilot apparently in perfect health. In September, 1957, he had to bail out from a high-speed Sabre jet at 13,000 feet over the sea. He had to use an ejection seat for this, and he was the first Australian pilot to use this largely problematical means of saving his life. After the mechanism had functioned successfully he alighted in the open sea and was rescued by fishermen. He was examined by doctors and found to be suffering from slight bruising and shock. Several days later purple spots developed on his face, which disappeared after about a week. It is known that the ejector mechanism was not fitted with protection for his face from the high-velocity slip stream. In the following weeks there were many articles in the Press condemning the ejector mechanism as being dangerous and obsolete. The emphasis, direct and indirect, was the great risk to the pilot of sudden or delayed injury of a major degree. On January 14, 1958, approximately four months after the incident, he received an injection for overseas service. On his way home he became ill. He vomited five times. On the Stockton ferry he was so concerned by his ill health as to write his name and address on a piece of paper. After arriving home he collapsed and died. Examination of stomach contents established that there was no poison in the stomach. At a post-mortem examination Dr. C. W. England found coronary sclerosis. The coroner was satisfied that the cause of death was coronary sclerosis.

There is also a suspicion that he was noticed to be in an indifferent state of health by some of his associates during the few weeks before his death; also that he had an incident of disturbed consciousness the day before his death.

The mechanism of coronary deaths has been so difficult to unravel because we are dealing with a disease in which there are many variables. A number of persons have died in similar circumstances with apparently similar symptoms, but at post-mortem examination widely different facts are found in the heart: in one the coronary arteries are sclerosed and a large branch is blocked by a clot; in another gross sclerosis is present, the arterial walls being calcified, but no clot is present; in a third there is minimal sclerosis and no clot; in a fourth there is neither sclerosis nor clot; in others there is an area of infarction. Yet in each type of case the cause of death from time to time has been given as coronary artery disease, under one of its many names, and I consider this diagnosis to be right in the broadest sense of the term "coronary artery disease".

In the past in this controversy the coronary arteries have been regarded as atheromatous tubes rather than as neuromuscular tubes. Reference to most text-books establishes that the all-important neuromuscular control of the lumen is largely overlooked. I think this is the key to the mechanism of coronary deaths. The calibre of the coronary arteries is varying continually during everyday life with every change in cardiac activity. The calibre is controlled by the arterial musculature, which in turn is controlled by the autonomic nerve supply of the heart, which in turn is controlled by the subcortical nuclei, mainly but loosely covered by the term hypothalamus.

As well as controlling the numerous functions of the autonomic nervous system, the hypothalamus is an integral structure in the emotional mechanism. Under certain circumstances of emotional crisis, maximal stimulation of the hypothalamus causes paralysis of all hypothalamic

function, autonomic arrest and death. The maximal emotional crisis in these cases is usually concerned with sudden death and violence. Lesser degrees of emotional overload cause lesser degrees of hypothalamic malfunction (autonomic dyspraxia). The peripheral result is malfunction of smooth muscle fibres or glands in some peripheral organ according to circumstances. One of the circumstances determining the site of the peripheral malfunction is local peripheral pathology. In the event of autonomic dyspraxia, malfunction is more likely to occur in an organ with pathological structural changes. This is where the multi-factor nature of coronary disease comes in. If the coronary artery is altered structurally by atheroma, a malfunction is likely to occur in its neuromuscular control, if autonomic dyspraxia occurs. A spasm occurs in some part of its bed.

Autonomic dyspraxia + atheroma = spasm.

The greater the magnitude of either component of the left side of the equation, the smaller need the magnitude of the other component be. In an old man with pipe-stem coronaries a minor emotional overload can cause coronary spasm. In a young man with minimal sclerosis, a maximal overload and *commotio hypothalami* is required.

This mechanism explains all the observed phenomena: the cases with clots (thrombosis occurring in the distal, arrested column of blood) and the cases without clots (death before time for thrombosis); the cases with gross sclerosis and the cases without infarction.

In the present case there is evidence of autonomic dyspraxia: a common cause is a terrifying life and death situation, prolonged over a long period by the Press; purple spots appearing on his face several days after the incident and resolving in about a week (neurovascular, not bruising), injection of bacterial toxins (further stimulation of the autonomic nervous system), vomiting in the absence of chemical or bacterial cause.

There is also evidence of coronary sclerosis.

There is also evidence of coronary occlusion: in the pre-infarction phase; initial minor interference with consciousness, followed by malaise, vomiting, *timor mortis* (name and address), collapse and sudden death.

All of which adds up in my mind to death from coronary occlusion, to use the most appropriate current nomenclature, and illustrates the diverse but integral factors concerned in this multifactor disease.

Yours, etc.,

185 Macquarie Street,
Sydney,
February 12, 1958.

BRIAN G. HAYNES.

A NEW MEDICAL SCHOOL FOR NEW SOUTH WALES.

SIR: It is heartening to observe that the New South Wales Minister for Health, Mr. W. Sheahan, is so accessible for public discussion and does not retreat into that state of inscrutability so characteristic of many people in high places. His letter to THE MEDICAL JOURNAL OF AUSTRALIA of February 22 is additional evidence of this goodwill, and one assumes that comments are thereby invited.

Regrettably one must disagree with Mr. Sheahan's opinion of the committee appointed by the Government. The manner in which it was constituted makes it unrepresentative, and criticism of bias can be levelled at the majority of the personnel.

In constituting this committee, no invitation to send representatives was extended to the University of Sydney, the Faculty of Medicine, the Colleges or the teaching hospitals. Therefore the men on this committee whose names are associated with these bodies have no mandate to express their views other than as private individuals. All members of this committee are government appointees and cannot speak on behalf of the institutions which they might be inferred to represent.

The majority of the members of this committee are either associates of the chairman, Dr. K. W. Starr, or connected with Sydney Hospital or the University of Technology. It is true that the large number of successful Macquarie Street specialists are men of good repute and have some connexion with medical education, even though this is very tenuous in certain cases. The one logical appointee, the Professor of Hospital Administration at the New South Wales University of Technology, was omitted. One can but assume that his views on medical education which gained

him a master's degree in hospital administration in the United States were unwelcome.

This committee has been described, inaccurately, as one set up to advise the Government on medical education. However, Dr. K. W. Starr, the chairman, has been quoted publicly as stating that the terms of reference of his committee preclude any discussion of the site for a new medical school. The effect of this statement is to stifle discussion on any possible reforms of medical education, and restrict the deliberations to consideration of a medical curriculum to be set up within the proposed new university. It seems that we are to witness the spectacle of a group of well-known citizens sanction, by their continued presence on this committee, a form of medical education which has yet to be revealed, and which they are precluded from discussing.

Those people who feel sufficiently strongly about this to have interviewed various Members of Cabinet, and the Labour Party, are confident that the common sense and fair-mindedness that one believes to be an Australian characteristic will prevail to allow full discussion on medical education generally before any precipitate action is taken.

Yours, etc.,

IAN MONK.

135 Macquarie Street,
Sydney,
February 24, 1956.

Obituary.

GAVIN BRUCE WHITE.

We are indebted to Dr. Cotter Harvey for the following account of the career of the late Dr. Gavin Bruce White.

The sudden death of Dr. Bruce White on December 30 while on holidays came as a great shock to his many friends and colleagues.

Gavin Bruce White, a son of the Manse, was born 60 years ago in the quiet Macquarie town of Windsor. His early days there inculcated in him a love of the country, which was to influence his later life. However, with his parents, he moved around the circuit, and from the suburb of Stanmore he went to the famous Fort Street Boys' High School near by. Matriculating in 1914, he commenced the university course of agricultural science, in which he had a very successful first year, gaining a scholarship. However, many of his friends were pursuing a collateral course in medicine, and it was no great surprise when he changed horses, joining them in second year. He was always among the leaders in a very hot year (that of Johnnie Hunter), graduating with second-class honours in 1920. Twelve months' residency at the Royal Prince Alfred Hospital was followed by a period at the Royal Alexandra Hospital for Children, and then came the overseas pilgrimage, London, of course, being the Mecca.

He commenced as a house surgeon at the Royal Waterloo Hospital for Women and Children, being a resident to Mr. Frankau, a famous surgeon of those days. The latter was so impressed with this young Australian that he obtained for him a post at the teaching hospital of St. Georges, an unusual distinction for an overseas graduate. Bruce made the most of his opportunity there, applying himself intensively to medicine, and he duly obtained his Membership of the Royal College of Physicians of London in 1923.

In 1924 he returned to Sydney and commenced general practice in the growing suburb of Ryde. Always conscientious and efficient in his work, kindly and gentle to a degree, Bruce was an ideal family doctor, and in a short time he had built up a very large practice. In 1928 he married Dr. Amy Clark, whom he had met, soon after her graduation, on his return from England. Their marriage was a supremely happy one, as they shared common interests to the full, and as a helpmate, she was always at his side.

The practice grew too large for him, and he took on a partner. This enabled him to commence "specializing". He joined the staff of the Anti-Tuberculosis Association in 1934, on which he remained as honorary physician until 1948. A few years later he was appointed to the staff of what was then the Pulmonary Clinic at the Royal North Shore Hospital, later to become the Thoracic Unit with 100 beds. This speciality interested him greatly, and he took rooms in Macquarie Street in order to pursue it more closely.

The departure of a colleague on a sabbatical year in 1939 gave him the chance, which he eagerly accepted, to "take the plunge". He sold his general practice and thenceforth

devoted himself entirely to chest diseases, which meant, in the main, pulmonary tuberculosis.

The outbreak of war, and the consequent introduction of pre-enlistment X-ray examination of recruits, found him immersed in the important task of reading miniature films. He was enlisted with the rank of major, and worked at all sorts of odd hours to keep these readings up to date. Nevertheless, he found time to sit for and obtain the Membership of The Royal Australasian College of Physicians in September, 1940, and six years later, he was elected to the Fellowship.

In early 1941, the departure on overseas military duty of his senior colleague at the Royal North Shore Hospital led him gladly to accept the added responsibility of caring for his friend's practice, a duty he discharged magnificently for five years. As the one who benefited thereby, the writer



would like to acknowledge the debt he owed to Bruce White, one he can never repay. Very few consultants could have returned from active service after five years to have their practice handed back to them exactly as if they had never been away. This was a measure of Bruce's unselfishness, and his high sense of duty.

His war service was, indeed, greater than that of many who went into uniform. During this phase, in addition to holding two practices, he did duty at three chest clinics—he was now going weekly to the chest clinic at Manly Hospital, as well as North Shore and "Albion Street"—working often in the out-patient departments till long after 6 p.m., and he went to the Barracks, spending hours of "overtime" on reading X-ray films. As a result of overwork, he developed chronic dermatitis especially of the hands, which pestered him for years, and his eyesight was materially affected.

A severe illness in 1948 looked like ending his active career; but he made a splendid recovery. So it was that on the formation later that year of the National Association for the Prevention of Tuberculosis in Australia, he became an active councillor and gave yeoman service to the local division, especially on the side of education and propaganda. Also, he was appointed lecturer at the University of Sydney on public health aspects of tuberculosis, a task which he undertook with his customary thoroughness and care. He was one of those chiefly responsible for the very successful Asian-Pacific Tuberculosis Conference held in Sydney in 1955, which involved a great deal of organization.

In recent years, the land claimed his increasing interest, and he saw his son settled in a sheep-grazing property in the west with keen delight. He had announced his intention of buying a smaller property for himself. Also he found time, in addition to his regular game of golf, to engage in the fascinating pastime of trout-fishing. This year, as he had retired six months ago from hospital practice, he was looking forward to a "quiet and restful time". But it was not to be: a sudden coronary occlusion proved instantly fatal. The service held at St. Stephen's Church, Macquarie Street, Sydney, was very largely attended, and was perhaps

chiefly remarkable for the number of old patients who came to pay their last respects to their beloved mentor and physician.

Bruce White was a man of unquestioned integrity, whose somewhat hesitant manner often concealed firm decision and willpower. His enthusiasm in the cause of tuberculosis was immense, and he will be sorely missed on that front, where the battle is not yet over, and recruits to the cause are diminishing. He rendered great service to the community in his chosen speciality, and he never spared himself. His patients all loved him, and his medical colleagues and the nursing staff found him a most delightful member of the team. He was an ideal family man, deservedly proud of his wife, who is attached to the Tuberculosis Division of the Board of Health, his son, a grazier, and his daughter, an air hostess in Qantas. To them and to his three sisters, to whom he was "a very parfit gentle knight", goes our sincere sympathy.

Dr. F. S. HANSMAN writes: In 1914, the senior class of 41 students left Fort Street High School; 40 passed the Leaving Certificate examination, and except for three, who immediately enlisted in the first Australian Imperial Force, the remainder went on to the University. It was a brilliant year, Professor Johnny Hunter being its outstanding student. The headmaster, "Boss" Kilgour, always referred to it as the *annum mirabile*. The late Dr. White was in this class. He is the twentieth to have passed into the unknown.

Close friends of some 50 years become integral parts of each other's existence, and deaths leave scars which do not heal. This must be the experience of all who have lived to see, one by one, those who have intimately shared their successes and their sorrows pass on.

Obituary appreciations generally trace the life of the person, but in this instance I prefer—inadequately—to give a picture of Bruce. He was a devoted son, husband, father and brother; the pivot of the family circle, to whom everything was referred, and whose decision was final and accepted as a matter of course.

Amongst his friends the same spirit prevailed: "Let's ask Bruce"; "I wonder what Bruce thinks"; "We must tell Bruce" became the normal procedure for all happenings. The reason was that he was so very "approachable", and everyone knew that he would receive a kindly, sympathetic hearing. Bruce's "understanding" was in resonance with a wide range of human types. He was the ideal doctor, the man whose personality and the personality of the patient became as one. This rare quality was his most outstanding characteristic.

His interests were varied, and ranged through medicine, music, the humanities and natural phenomena. He was very attached to domestic animals. He liked the sea and loved the land. He was immensely proud of the Snowy Mountains Scheme, and his death occurred whilst on a holiday inspecting the recent progress of this vast enterprise.

His enthusiasm was contagious; whether at work or at play his whole heart was in it. During the second World War he greatly impaired his eyesight examining thousands of miniature chest X-ray films of the armed forces. Ten years ago he suffered a subarachnoid haemorrhage, from which he slowly recovered and went on to continue a most strenuous life. I never heard him complain; he was always cheerful—a kind word for everybody, a nature which endeared him to all. His tastes were simple, he was modest, hospitable, always thoughtful of others, with a keen sense of fun and humour.

The greatest tribute one can pay to him is to say that I know no one who had so many friends—using the word as Cicero conceived friendship. His example and his spirit will live on amongst all who knew him.

Dr. C. G. BAYLISS writes: Others have described Bruce White's career and made clear the position he occupied in this State in his chosen speciality. However, a mere factual record tells nothing of Bruce White the man, as he was loved by colleagues, patients and a large circle of friends. It will not explain the aura of sadness which hung like a pall over the Thoracic Unit of the Royal North Shore Hospital following the news of his death.

Bruce reached a position of eminence as a chest physician in Sydney. His opinion was always backed by sound common sense, and he never sought to dazzle by the studied use of the spectacular. He had the respect of the colleagues with whom he worked, and that is perhaps the most satisfying achievement in any career. In addition his broad humanity inspired affection. He was truly a beloved physician.

Bruce was intensely interested in people and the world about him, and frequently surprised by his fund of general knowledge. He had retained a freshness of mind to be envied by many a younger man, and to the time of his death was planning enthusiastically for the future. He had been a member of the Council of the New South Wales Division of N.A.P.T.A. since its establishment and had been an indefatigable worker in furthering its objectives. He was always ready to work on subcommittees, and only his close associates knew the amount of time out of a busy life he gave to this cause.

He was a happy man and rarely did I see him cast down. When his home at Leura was destroyed in the recent disastrous fire, he took it with a characteristic shrug. Those privileged to know his wife and family would not doubt that his signally happy home life contributed largely to that sane and balanced attitude of mind which controlled his whole life.

His life was gentle; and the elements
So mix'd in him that Nature might stand up
And say to all the world, "This was a man!"

ALAN PRYDE.

We are indebted to Dr. C. Craig for the following account of the career of the late Dr. Alan Pryde.

Dr. Alan Pryde, who died in Launceston on January 11, 1958, was born in Melbourne in 1891. He was at Scotch College, Melbourne, from 1903 to 1908, and entered the University of Melbourne in 1909, qualifying in 1914. During



the first World War he served in France with the Royal Army Medical Corps. He married Miss Frances Weston, a member of an old and well-known Tasmanian family; his widow, three daughters and a son survive him. One of his daughters, Dr. Elizabeth Pryde (Mrs. Cameron), studied medicine at the University of Melbourne, and was later on the resident medical staff of the Launceston General Hospital. During the second World War Alan Pryde was consulting surgeon to the 11th Australian General Hospital. From 1943 onwards he was consulting surgeon to the Repatriation Department. His association with the Launceston General Hospital began in 1916 and 1917, when he was on the resident medical staff; after this he was for

some years in general practice in South Australia. He returned to Launceston in 1925, and entered private practice, joining the visiting staff of the Launceston General Hospital. At that time the long dispute with the Government had just ended. For about eight years the hospital had been a closed one, with no honorary staff. In 1925 a new honorary staff was formed; it included a number of young, enthusiastic men such as Alan Pryde, who were to devote the next 30 years of their lives to raising the standard of work in their hospital. The newly formed Northern Division of the Tasmanian Branch of the British Medical Association was then the only body interested in post-graduate work. As a member of the executive, as secretary and as chairman, Alan Pryde served this division well. He was twice president of the Tasmanian Branch. In the early years there was no specialization at the hospital. Specialist work was soon introduced, however, and Pryde became one of the surgeons. After many years as a general surgeon he gradually developed his interest in thyroid work, and in 1942 was given charge of a thyroid clinic, in conjunction with Dr. J. L. Grove. Undoubtedly one of the things that attracted him to thyroid surgery was that the operation of thyroidectomy is one demanding a high degree of technical skill. He was supremely gifted with his hands, and his approach to the operation was instinctively that of an artist.

When he first became ill several years ago, his first reaction was: "I must not die till I have seen thyroid work in other countries." He visited all the main clinics in England and Europe, and on his return wrote a comprehensive report. He continued at work until the last possible moment.

The keynote of Alan Pryde's character was zest. Whatever he was doing at the moment, whether operating, fishing or playing golf or tennis, he enjoyed to the uttermost. His presence was very much welcomed on light-hearted social occasions, when his sense of fun and dry humour made him an excellent "party" man. He loved to live on terms of cordiality with his colleagues, and by them he will always be held in affectionate remembrance.

British Medical Association.

NEW SOUTH WALES BRANCH.

THE following letter is published at the request of the Assistant Medical Secretary of the N.S.W. Branch of the B.M.A. It is the reply of the Minister for Health to the letter from the Branch published in the issue of March 22, 1958.

[COPY.]

MINISTER FOR HEALTH, NEW SOUTH WALES.

Sydney,
14th March, 1958.

Dr. H. Hunter,
Assistant Medical Secretary,
British Medical Association,
135 Macquarie Street,
Sydney.

Dear Dr. Hunter,

I have your letter referring to the deliberations of the Committee appointed by the Government to consider and report upon the establishment of a second medical school in this State. Your request that a longer period should be allowed for your Association to make representations to the Committee is noted, but I must say at once that I cannot find any good reason for agreeing with your request.

May I point out to you that I publicly announced the appointment of the Committee as long ago as December; that before that your Association had had the same opportunity as the Victorian Branch of the B.M.A. to make representations to the Murray Committee, but, unlike that Branch, you did not apparently consider it sufficiently important to do so; that the members of the Committee appointed by the Government are well qualified, both professionally and in respect of experience in University administration, to report fully and to consider any representations that might be made; that the Government desires an early report on

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MARCH 8, 1958.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory. ²	Australia. ³
Acute Rheumatism	2(2)	5(1)	..	..	..	..	..	7
Amoebiasis	1	..	..	1
Ancylostomiasis
Anthrax
Bilharziasis
Brucellosis
Cholera
Chorea (St. Vitus)	1(1)	..	..	..	..	..	1
Dengue
Diarrhoea (Infantile)	5	11(6)	2(2)	..	3(3)	..	1	..	22
Diphtheria	1	..	..	..	..	..	1
Dysentery (Bacillary)	2(1)	2(2)	2(1)	..	..	..	6
Encephalitis	1	..	1	..	..	..	..	..	2
Filariasis
Homologous Serum Jaundice	1	..	..	1
Hydatid
Infective Hepatitis	32(9)	19(7)	10	2(1)	..	..	1	..	64
Lead Poisoning
Leprosy	2	..	2
Leptospirosis	1
Malaria	1(1)	..	..	..	..	..	1
Meningococcal Infection	1(1)	..	..	..	..	..	..	1
Ophthalmia	1	..	..	..	1
Ornithosis
Paratyphoid
Plague
Pollomyelitis	1	..	..	..	..	..	1
Puerperal Fever	1	..	..	..	..	..	..	..	1
Rubella	16(10)	..	6(2)	9(8)	..	..	..	31
Salmonella Infection	2(2)	..	..	..	2
Scarlet Fever	9(3)	17(10)	2	2(1)	1	1	..	..	32
Smallpox
Tetanus	8(3)	..	..	..	8
Trachoma
Trichinosis
Tuberculosis	41(20)	23(14)	20(10)	3(2)	11(9)	1(1)	..	..	99
Typhoid Fever	1(1)	..	..	..	4(4)	..	..	..	5
Typhus (Flea-, Mite- and Tick-borne)	1	..	..	..	..	..	1
Typhus (Louse-borne)
Yellow Fever

¹ Figures in parentheses are those for the metropolitan area.

² Return not received.

³ Figures incomplete owing to absence of return from Australian Capital Territory.

what it regards as an urgent problem, and cannot in any circumstances agree to extend the deliberations of the Committee, to meet your convenience, to a "very much later date" as requested.

May I add that I was fully aware of the full contents of the Murray Committee's report prior to the receipt of your letter; I note the quotations in your letter, but would invite your attention to the other very relevant sections of the report which are worthy of your careful examination.

The Government's programme for 1958 has been settled and cannot lightly be disturbed to meet the convenience of your Association, which has had ample time, in my view, to clarify its views as to what is required.

Yours faithfully,

(Signed) W. SHEWAN,
Minister for Health.

The Royal Australasian College of Physicians.

VISIT OF PROFESSOR SAUL ADLER.

PROFESSOR SAUL ADLER, F.R.S., Professor of Parasitology in the Hebrew University, Jerusalem, will visit Australia in April and May, 1958. The visit has been made possible by the generosity of Mr. Adolph Bassor, who has made a special donation for this purpose to The Royal Australasian College of Physicians. This has been augmented by a substantial contribution by the Australian Fellowship of the Israeli Medical Association which initiated arrangements for his visit. Professor Adler is one of the world's most distinguished parasitologists and is well known to Australian medical officers who served in the Middle East during World War II. The help which he gave to the medical services prepared them to meet the problems which they would encounter not only in the Middle East but also in New Guinea, and thus contributed materially to their efficiency.

Professor Adler will visit Melbourne from April 5 to 20, where he will attend a meeting of the Australian Fellowship of the Israeli Medical Association and will also undertake a programme to be arranged by Professor E. S. J. King. In Sydney, from April 20 to 28, his programme will be arranged by Professor E. Ford, Director of the School of Public Health and Tropical Medicine, and in Brisbane from April 28 to May 5 by Dr. I. M. Mackerras, Director of the Queensland Institute of Medical Research. It is possible that he may also visit South Australia and New Zealand.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Degotardi, Lynette Florence, M.B., B.S., 1956 (Univ. Sydney), Old Northern Road, Dural, New South Wales.

Bell, Sydney Malcolm, M.B., B.S., 1956 (Univ. Sydney), 5 Rossiter Avenue, Maroubra, New South Wales.

Melov, John, M.B., B.S., 1957 (Univ. Sydney), Prince Henry Hospital, Little Bay, New South Wales.

Lucas, Joseph Anthony, M.D., 1941 (Univ. Bratislava), registered under Section 17 (2B) of *The Medical Practitioners Act, 1938-1957*, 8 Tombsen Avenue, Turramurra, New South Wales.

Booth, Elizabeth Marie Joan, M.B., B.S., 1956 (Univ. Sydney), 9 Lane Cove Road, Ryde, New South Wales.

Harmos, Gyula Arpad Ferenc, M.D., 1937 (Univ. Pecs), registered under Section 17 (2B) of *The Medical Practitioners Act, 1938-1957*, Ashford, New South Wales.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

O'Hea, James Patrick, M.B., B.Ch., B.A.O., 1951 (N.U. Ireland), 67 Main Road, Lower Ferntree Gully, Victoria.

Diary for the Month.

- MARCH 29.—Tasmanian Branch, B.M.A.: Annual Meeting.
APRIL 1.—New South Wales Branch, B.M.A.: Council (election of officers).
APRIL 2.—Western Australian Branch, B.M.A.: Branch Council.
APRIL 3.—South Australian Branch, B.M.A.: Branch Council Meeting.
APRIL 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
APRIL 10.—New South Wales Branch, B.M.A.: Public Relations Committee.
APRIL 10.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

Queensland Branch (Honorary Secretary, 38 L'Estrange Terrace, Kelvin Grove, Brisbane, W.1): All applicants for Queensland State Government Insurance Office positions are advised to communicate with the Honorary Secretary of the Branch before accepting posts.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

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